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PAUL PIGNATARO

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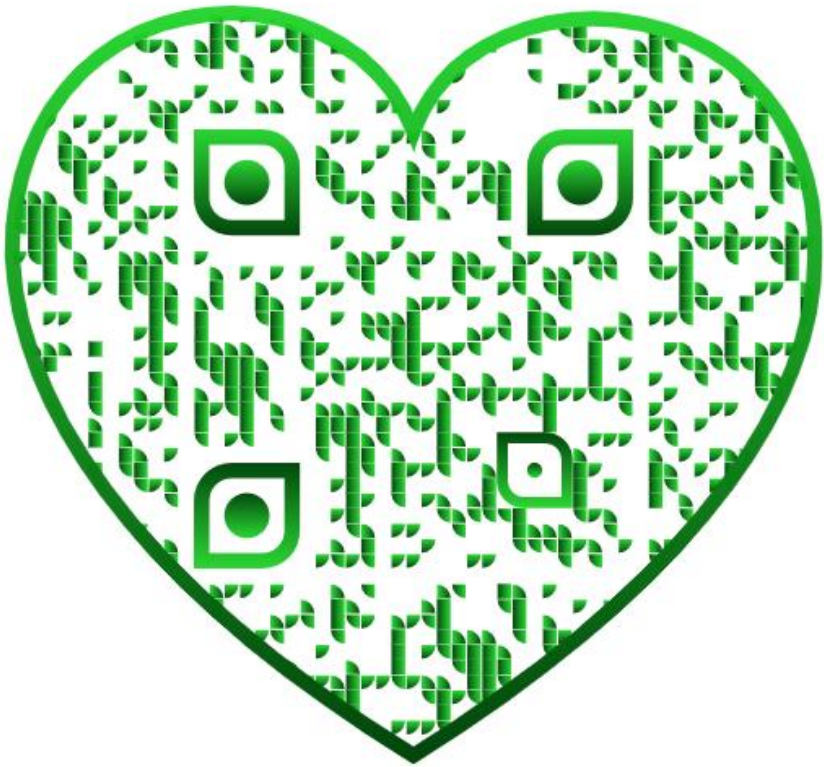

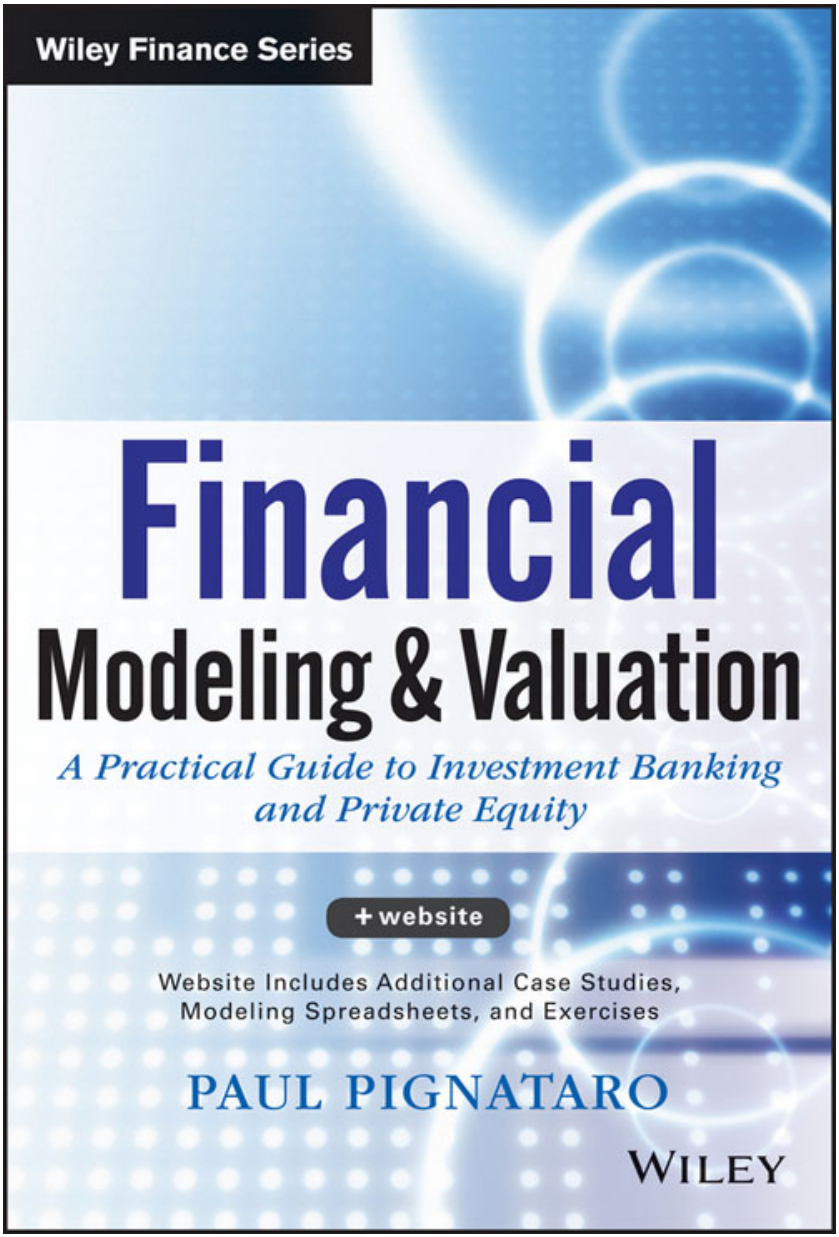
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Financial Modeling and Valuation

A Practical Guide to Investment Banking and Private Equity

PAUL PIGNATARO

WILEY

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This book is dedicated to every investor in the pursuit of enhancing his or her wealth. Those that have gained; those that have lost; this continuous struggle has confounded the minds of many. This book should be one small tool to help further said endeavor; and if successful, the seed planted to spawn a future of more informed investors and smarter markets.

Preface

The markets are vast and complex—not only the United States, but also the global markets. Stocks, bonds, mutual funds, derivatives, options—yes, choices are endless, literally. Everyone wants to make money. Yet, throughout the past years we have faced tremendous market swings, rendering investors (and their money) in a sea of lost hopes and few investors with a plethora of wealth. Many of these market anomalies and swings are dependent, and in a sense dictated by the investor—you. The investor plays a part in setting the current stock price. The reaction of the investor can aid in determining the success of an initial public offering (IPO). Yes, the collective psychology of the market as a whole plays a major role, but if the everyday investor were better equipped with the proper tools to understand the underlying fundamentals of a rational investment, smarter investment decisions could be made, more rational investments would be made, and the markets would be a more efficient environment.

This book sets out to give any investor the fundamental tools to help determine if a stock investment is a rational one; if a stock price is undervalued, overvalued, or appropriately valued. These fundamental tools are used by investment banks, private equity firms, and Wall Street analysts.

We will evaluate Walmart, determining its current financial standing, projecting its future performance, and estimating a target stock price. We will further assess if this is a viable investment or not, but more importantly, give you the tools and concepts to make your own rational investment decisions. We will have you step into the role of an analyst on Wall Street to give you first-hand perspective and understanding of how the modeling and valuation process works with the tools you need to create your own analyses.

This is a guide designed for investment banking and private equity professionals to be used as a refresher or handbook, or for individuals looking to enter into the investment banking or private equity field. Whether you are valuing a potential investment or business, the tools demonstrated in this book are extremely valuable in the process.

THE WALMART CASE STUDY

We will analyze Walmart throughout this book. Walmart is an American multinational retailer corporation that runs chains of large discount department stores and warehouse stores. The company is the world's third largest public corporation, according to the Fortune Global 500 list in 2012. It is also the biggest private employer in the world, with over two million employees, and is the largest retailer in the world. If we want to invest in Walmart, how do we determine the viability of such an investment? In order to ensure profitability from a stock investment, we need to understand what the future stock price of Walmart could be. Obviously, stock price fluctuations are largely based on public opinion. However, there is a technical analysis used by Wall Street analysts to help determine and predict the stock price of a business.

We ran this analysis in January 2012, determining there was still more room for the stock price to increase. Since that analysis, the stock price has in fact increased significantly from $57.39 to $73.82. We now want to reassess the analysis to see where the stock price can go from here. This time, we will walk you through a complete analysis of Walmart to determine the potential value of the stock. It is important to note this book was written in October of 2012 so all analyses are based on that date.

This technical analysis is based on three methods:

1. Comparable company analysis
2. Discounted cash flow analysis
3. Precedent transaction analysis

Each of these three methods views Walmart from three very different technical perspectives. Individually, these methods could present major flaws. However, it is the common belief that looking at all of these methods together will help us understand the technical drivers supporting Walmart's
current stock price. Using Walmart as the example, we will build and construct all three of the listed analyses and all the supporting analyses exactly as a Wall Street analyst would. We will then have the ability to interpret from the analysis if Walmart is undervalued, overvalued, or appropriately valued. If the company is determined to be undervalued, that may suggest the stock price is lower than expected. We can potentially invest in the business and hope the stock price in time will increase. If the company is determined to be overvalued, that may suggest the stock price is higher than expected. In this case it may not make sense to invest in the business, as the stock price in time could potentially decrease. We are assuming in these cases there has been no unusual or unpredictable activity or announcements in Walmart's business or in the stock market. Such activity or announcements would affect the stock price above and beyond what the technical analysis predicts.

It is important to note that the modeling methodology presented in this book is just one view. The analysis of Walmart and its results do not directly reflect my belief, but rather, a possible conclusion for instructional purposes only based on limiting the most extreme of variables. There are other possibilities and paths I have chosen not to include in this book, but could have also been sufficient. Many ideas presented here are debatable, and I welcome the debate. The point is to understand the methods, and further, the concepts behind the methods to properly equip you with the tools to drive your own analyses.

HOW THIS BOOK IS STRUCTURED

This book is divided into two parts:

1. Financial Statements and Projections
2. Valuation

In Part One, we will build a complete financial model of Walmart. We will analyze the company's historical performance and step through techniques to make accurate projections of the business's future performance. The goal of this section is not only to understand how to build a model of Walmart, but also to extract the modeling techniques used by analysts and to apply those techniques to any investment.

Once we have a good understanding of Walmart's past and future performance, Part Two will help us interpret the company's financials into a valuation analysis using the methods mentioned previously. You may skip directly to Part Two if your needs do not require building a complete financial model.

It is important to note it is not 100 percent necessary to have a full-scale model in order to conduct a valuation analysis, but it is recommended. Valuation techniques are based on a summary of the company's performance. In this case, to be complete, we will use the model of the company built in Part One to extract the necessary summary information and to conduct the valuation analysis. However, you could technically use summary information as well.

The book is designed to have you build your own model on Walmart step-by-step. The model template can be found on the companion web site associated with this book and is titled "NYSF—Walmart—Template.xls." To access the site, go to www.wiley.com/go/pignataro (password: investment).

PART One

Financial Statements and Projections

Financial modeling is the fundamental building block of analysis in investment banking. We will take a look at Walmart and analyze its financial standing, building a complete financial model as it would be done by Wall Street analysts.

The goals of this section are:

1. Understanding financial statements
    a. Concepts
    b. Historical analysis
    c. Making projections
    d. Model flow between the statements
2. Ability to build a complete financial model of Walmart

It is recommended that a financial model be built in six major components:

1. Income statement
2. Cash flow statement
3. Balance sheet
4. Depreciation schedule
5. Working capital
6. Debt schedule

The first three are the major statements: income statement, cash flow statement, and balance sheet. The latter three help support the flow and continuity of the first three. It is also not uncommon to have even more supporting schedules depending on the required analysis. Notice the first six tabs in the model template ("NYSF—Walmart—Template.xls"). Each reflects the six major model components. Please use the template and follow along as we build the model together.

CHAPTER 1

The Income Statement

The income statement measures a company's profit (or loss) over a specific period of time. A business is generally required to report and record the sales it generates for tax purposes. And, of course, taxes on sales made can be reduced by the expenses incurred while generating those sales. Although there are specific rules that govern when and how those expense reductions can be utilized, there is still a general concept:

$$\text{Profit} = \text{Revenue} - \text{Expenses}$$

A company is taxed on profit. So:

$$\text{Net Income} = \text{Profit} - \text{Tax}$$

However, income statements have grown to be quite complex. The multifaceted categories of expenses can vary from company to company. As analysts, we need to identify major categories within the income statement in order to facilitate proper analysis. For this reason, one should always categorize income statement line items into nine major categories:

1. Revenue (sales)
2. Cost of goods sold
3. Operating expenses
4. Other income
5. Depreciation and amortization
6. Interest
7. Taxes
8. Non-recurring and extraordinary items
9. Distributions

No matter how convoluted an income statement is, a good analyst would categorize each reported income statement line item into one of these nine categories. This will allow an analyst to easily understand the major categories that drive profitability in an income statement and can further allow him or her to compare the profitability between several different companies—an analysis very important in determining relative valuation. This book assumes you have some basic understanding of accounting, so we will just briefly recap the line items.

REVENUE

Revenue is the sales or gross income a company has made during a specific operating period. It is

important to note that when and how revenue is recognized can vary from company to company and may be different from the actual cash received. Revenue is recognized when “realized and earned, ” which is typically when the products sold have been transferred or once the service has been rendered.

COST OF GOODS SOLD

Cost of goods sold is the direct costs attributable to the production of the goods sold by a company. These are the costs most directly associated to the revenue. This is typically the cost of the materials used in creating the products sold, although some other direct costs could be included as well.

Gross Profit

Gross profit is not one of the nine categories listed, as it is a totaling item. Gross profit is the revenue less the cost of goods sold and is helpful in determining the net value of the revenue after the cost of goods sold is removed. One common metric analyzed is gross profit margin, which is the gross profit divided by the revenue. We will calculate these totals and metrics for Walmart later in the chapter.

A business that sells cars, for example, may have manufacturing costs. Let’s say we sell a car for $20, 000, and we manufacture the cars in-house. We have to purchase $5, 000 in raw materials to manufacture the car. If we sell one car, $20, 000 is our revenue and $5, 000 is the cost of goods sold. That leaves us with $15, 000 in gross profit, or a 75 percent gross profit margin. Now let’s say in the first quarter of operations we sell 25 cars. That’s 25 $\times$ $20, 000, or $500, 000 in revenue. Our cost of goods sold is 25 $\times$ $5, 000, or $125, 000, which leaves us with $375, 000 in gross profit.

Car Co.	**1Q 2012**
Revenue	500, 000.0
COGS	125, 000.0
Gross Profit	**375, 000.0**
% Gross Profit Margin	*75%*

OPERATING EXPENSES

Operating expenses are expenses incurred by a company as a result of performing its normal business operations. These are the relatively indirect expenses related to generating the company’s revenue and supporting its operations. Operating expenses can be broken into several other major subcategories, the most common of which are:

Selling, General, and Administrative (SG&A). These are all selling expenses and all general and administrative expenses of a company. Examples are employee salaries and rents.

Advertising and Marketing. These are expenses relating to any advertising or marketing initiatives the company employs. Examples are print

advertising and Google Adwords.

Research and Development (R&D). These are expenses relating to furthering the development of the company's product or services.

Let's say in our car business, we have employees to whom we have paid $75, 000 in total in the first quarter. We also have rents to pay of $2, 500, and we ran an advertising initiative that cost us $7, 500. Finally, let's assume we have employed some R&D efforts to continue to improve the design of our car that costs roughly $5, 000 per quarter. Using the previous example, our simple income statement looks like this:

Car Co.	**1Q 2012**
Revenue	500, 000.0
COGS	125, 000.0
Gross Profit	**375, 000.0**
% Gross Profit Margin	*75%*
Operating Expenses	
SG&A	77, 500.0
Advertising	7, 500.0
R&D	5, 000.0
Total Operating Expenses	**90, 000.0**

OTHER INCOME

Companies can generate income that is not core to their business. As this income is taxable, it is recorded on the income statement. However, since it is not core to business operations, it is not considered revenue. Let's take the example of the car company. A car company's core business is producing and selling cars. However, many car companies also generate income in another way: financing. If a car company offers its customers the ability to finance the payments on a car, those payments come with interest. The car company receives that interest. That interest is taxable and is considered additional income. However, as that income is not core to the business, it is not considered revenue; it is considered other income.

Another common example of other income is "income from non-controlling interests, " also known as "income from unconsolidated affiliates." This is income received when one company has a non-controlling interest investment in another company. So when a company (Company A) invests in another company (Company B) and receives a minority stake in Company B, Company B distributes a portion of its net income to Company A. Company A records those distributions received as other income.

EBITDA

Earnings before interest, taxes, depreciation, and amortization (EBITDA) is a very important measure among Wall Street analysts. We will later see its many uses as a fundamental metric in valuation and analysis. It can be calculated as Revenue – COGS – Operating Expenses + Other Income.

It is debatable whether other income should be included in EBITDA or not. There are two sides to the argument.

1. It should be included in EBITDA. If a company produces other income it should be represented as part of EBITDA, and other income should be listed above our EBITDA total. The argument here is that other income, although not core to revenue, is still in fact operating and should be represented as part of the company's operations. There are many ways of looking at this. Taking the car example, we can maybe assume that the financing activities, although not core to revenue, are essential enough to the overall profitability to be considered as part of EBITDA.

2. It should not be included in EBITDA. If a company produces other income it should not be represented as part of EBITDA, and other income should be listed below our EBITDA total. The argument here is although it is a part of the company's profitability, it is not core enough to the operations to be incorporated as part of the company's core profitability.

Determining whether to include other income as EBITDA is not so simple and clear cut. It is important to consider if the other income is consistent and reoccurring. If it is not, the case can more likely be made that it should not be included in EBITDA. It is also important to consider the purpose of your particular analysis. For example, if you are looking to acquire the entire business, and that business will still be producing that other income even after the acquisition, then maybe it should be represented as part of EBITDA. Or, maybe that other income will no longer exist after the acquisition, in which case it should not be included in EBITDA. As another example, if you are trying to compare EBITDA with the EBITDA of other companies, then it is important to consider if the other companies also produce that same other income. If not, then maybe it is better to keep other income out of the EBITDA analysis, to make sure there is a consistent comparison among all of the company EBITDAs.

Different banks and firms may have different views on whether other income should or should not be included in EBITDA. Even different industry groups within the same firm have been found to have different views on this topic. As a good analyst, it is important to come up with one consistent defensible view, and stick to it.

Let's assume in our car example the other income will be part of EBITDA.

Car Co.	**1Q 2012**
Revenue	500, 000.0
COGS	125, 000.0
Gross Profit	**375, 000.0**
% Gross Profit Margin	*75%*
Operating Expenses	
SG&A	77, 500.0
Advertising	7, 500.0
R&D	5, 000.0
Total Operating Expenses	**90, 000.0**
Other Income	1, 000.0
EBITDA	**286, 000.0**
EBITDA Margin	*57%*

Notice we have also calculated EBITDA margin, which is defined as EBITDA / Revenue.

DEPRECIATION AND AMORTIZATION

Depreciation is the accounting for the aging and depletion of fixed assets over a period of time. Amortization is the accounting for the cost basis reduction of intangible assets (intellectual property such as patents, copyrights, and trademarks, for example) over their useful life. It is important to note that not all intangible assets are subject to amortization. We will discuss depreciation and amortization (D&A) in Chapter 3.

EBIT

Similar to EBITDA, earnings before interest and taxes (EBIT) is also utilized in valuation. EBIT is EBITDA – Depreciation and Amortization. So let's assume the example car company has $8, 000 in D&A each quarter. So:

Car Co.	**1Q 2012**
EBITDA	286, 000.0
EBITDA Margin	*57%*
D&A	8, 000.0
EBIT	278, 000.0
EBIT Margin	*56%*

Notice we have also calculated EBIT margin, which is defined as EBIT divided by revenue.

INTEREST

Interest is composed of interest expense and interest income. Interest expense is the cost incurred on debt that the company has borrowed. Interest income is commonly the income received from cash held in savings accounts, certificates of deposits, and other investments.

Let's assume the car company had $1MM in loans and incurs 10 percent of interest per year on those loans. So the car company has $100, 000 in interest expense per year, or $25, 000 per quarter. We can also assume that the company has $50, 000 of cash and generated 1 percent of interest income on that cash per year ($500), or $125 per quarter.

Often, the interest expense is netted against the interest income as net interest expense.

EBT

Earnings before taxes (EBT) can be defined as EBIT – Net Interest.

Car Co.	**1Q 2012**
EBIT	278, 000.0
EBIT Margin	*56%*
Interest Expense	25, 000.0
Interest Income	125.0

Net Interest Expense	24, 875.0
EBT	253, 125.0
EBT Margin	*51%*

Notice we have also calculated EBT margin, which is defined as EBT divided by revenue.

TAXES

Taxes are the financial charges imposed by the government on the company's operations. Taxes are imposed on earnings before taxes as defined previously. In the car example, we can assume the tax rate is 35 percent.

Net Income

Net income is defined as EBT – Taxes. The complete income statement follows.

Car Co.	**1Q 2012**
Revenue	500, 000.0
COGS	125, 000.0
Gross Profit	**375, 000.0**
% Gross Profit Margin	*75%*
Operating Expenses	
SG&A	77, 500.0
Advertising	7, 500.0
R&D	5, 000.0
Total Operating Expenses	**90, 000.0**
Other Income	1, 000.0
EBITDA	**286, 000.0**
EBITDA Margin	*57%*
D&A	8, 000.0
EBIT	**278, 000.0**
EBIT Margin	*56%*
Interest Expense	25, 000.0
Interest Income	125.0
Net Interest Expense	**24, 875.0**
EBT	**253, 125.0**
EBT Margin	*51%*
Tax	88, 593.75

Tax Rate (%)	*35%*
Net Income	**164, 531.25**

NON-RECURRING AND EXTRAORDINARY ITEMS

Non-recurring and extraordinary items or events are expenses or incomes that are either one-time or not pertaining to everyday core operations. Gains or losses on sales of assets, or from business closures, are examples of non-recurring events. Such non-recurring or extraordinary events can be scattered about in a generally accepted accounting principles (GAAP) income statement,
and so it is the job of a good analyst to identify these items and move them to the bottom of the income statement in order to have EBITDA, EBIT, and net income line items that represent every day, continuous operations. We call this “clean” EBITDA, EBIT, and net income. However, we do not want to eliminate those non-recurring or extraordinary items completely, so we move them to this section. From here on out, we will refer to both “non-recurring” and “extraordinary” items simply as “non-recurring items” to simplify. We will see how this is dealt with particularly with Walmart later in this chapter.

DISTRIBUTIONS

Distributions are broadly defined as payments to equity holders. These payments can be in the form of dividends or non-controlling interest payments, to name the major two.

Non-controlling interests is the portion of the company or the company’s subsidiary that is owned by another outside person or entity. If another entity (Entity A) owns a non-controlling interest in the company (Entity B), Entity B must distribute a portion of Entity B’s earnings to Entity A. (We will discuss non-controlling interests in more detail in Chapter 5.)

Net Income (as Reported)

Because we have recommended moving some non-recurring line items into a separate section, the net income listed prior is effectively an adjusted net-income, which is most useful for analysis, valuation, and comparison. However, it is important still to represent a complete net income with all adjustments included to match the original given net income. So, it is recommended to have a second net income line defined as: Net income – non-recurring events – distributions, as a “sanity check.”

SHARES

A company’s shares outstanding reported on the income statement can be reported as basic or diluted. The basic share count is a count of the number of shares outstanding in the market. The diluted share count is the number of shares outstanding in the market plus any shares that would be considered outstanding today if all option and warrant holders that are in-the-money decided to

exercise on their securities. The diluted share count is best thought of as a "What if?" scenario. If all the option and warrant holders who could exercise would, how many shares would be outstanding now?

Earnings per Share (EPS)

Earnings per share (EPS) is defined as the net income divided by the number of shares outstanding. A company typically reports a basic EPS and a diluted EPS, divided by basic shares or diluted shares, respectively. It is important to note that each company may have a different definition on what exactly to include in net income when calculating EPS. In other words, is net income before or after non-controlling interests used? Or before or after dividends? For investors, it is common to use net income before dividends have been paid but after non-controlling interest investors have been paid. However, we recommend backing into historically the company's EPS to identify the exact formula they are using. We will illustrate this process with Walmart next.

Basic EPS = Net Income / Basic Shares

Diluted EPS = Net Income / Diluted Shares

WALMART'S INCOME STATEMENT

There are several ways to obtain a public company's financial information. We would first recommend going to the company's web site and locating the "Investor Relations" section. Walmart has a very comprehensive site with an Investor Relations section.

The "Annual Reports" section shown in FIGURE 1.1 on the left side takes us to their most recent financials. You can also go to the U.S. Securities and Exchange Commission (SEC) web site (www.sec.gov), where all public company filings are published, and search for Walmart's specific filings.

Both the annual report and the company's 10-K should have a section containing financial statements. We will use Walmart's 2012 annual report. You will notice in Figure 1.2, there is the Web version and the PDF version of the 2012 annual report. It is your choice which to use, but I would recommend the PDF so you can download a version on your desktop.

Note that by the time this book is published, Walmart may have changed their web site. If so, you can download a copy of the 2012 Walmart annual report on the companion web site associated with this book, or you can simply rely on the exhibits and examples throughout this book.

If you have downloaded the correct document, scroll down to locate the income statement. Make sure you have identified the company's complete income statement and not their "financial summary." These are easy to confuse. The financial summary does contain income statement information, but it is not as detailed as the actual income statement. The financial summary also typically contains a longer period (five or 10 years) of historicals, whereas the more detailed income statement typically contains only two or three years. Figure 1.3 is Walmart's financial summary section, taken from page 17 of the company's annual report. You can easily see that it does not contain all the necessary line items such as costs and expenses to properly create a model. You will also notice that it is labeled as "5-Year Financial Summary."

FIGURE 1.1 Walmart Investor Relations Web Site

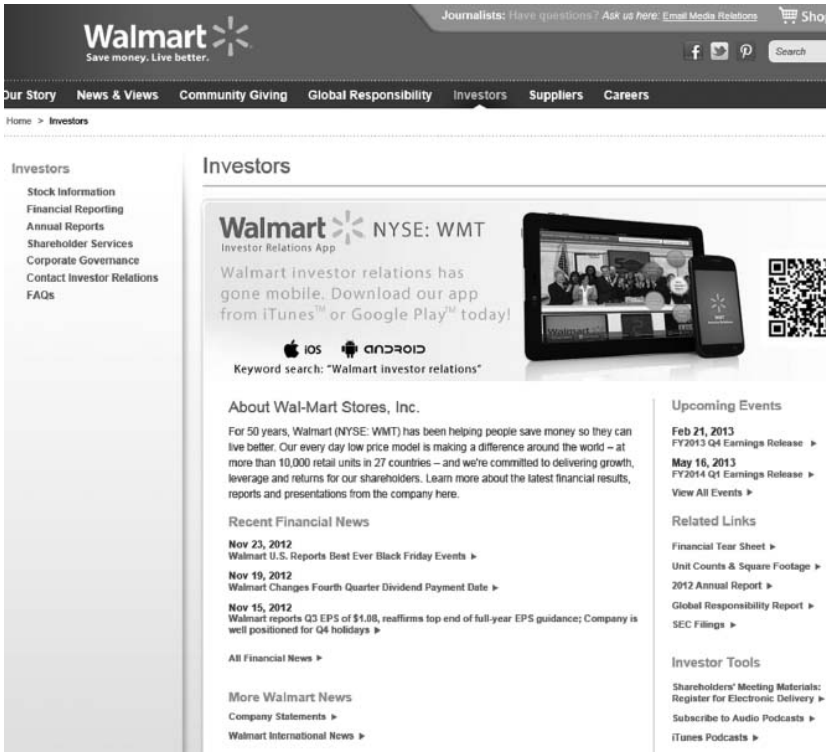
Walmart
Save money. Live better.
Journalists: Have questions? Ask us here: Email Media Relations
Shop
Search
Our Story
News & Views
Community Giving
Global Responsibility
Investors
Suppliers
Careers
Home > Investors
Investors
Stock Information
Financial Reporting
Annual Reports
Shareholder Services
Corporate Governance
Contact Investor Relations
FAQs
Investors
Walmart
Investor Relations App
NYSE: WMT
Walmart investor relations has gone mobile. Download our app from iTunes™ or Google Play™ today!
iOS
android
Keyword search: "Walmart investor relations"
About Wal-Mart Stores, Inc.
For 50 years, Walmart (NYSE: WMT) has been helping people save money so they can live better. Our every day low price model is making a difference around the world – at more than 10,000 retail units in 27 countries – and we're committed to delivering growth, leverage and returns for our shareholders. Learn more about the latest financial results, reports and presentations from the company here.
Recent Financial News
Nov 23, 2012
Walmart U.S. Reports Best Ever Black Friday Events
Nov 19, 2012
Walmart Changes Fourth Quarter Dividend Payment Date
Nov 15, 2012
Walmart reports Q3 EPS of $1.08, reaffirms top end of full-year EPS guidance; Company is well positioned for Q4 holidays
All Financial News
More Walmart News
Company Statements
Walmart International News
Upcoming Events
Feb 21, 2013
FY2013 Q4 Earnings Release
May 16, 2013
FY2014 Q1 Earnings Release
View All Events
Related Links
Financial Tear Sheet
Unit Counts & Square Footage
2012 Annual Report
Global Responsibility Report
SEC Filings
Investor Tools
Shareholders' Meeting Materials: Register for Electronic Delivery
Subscribe to Audio Podcasts
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FIGURE 1.2 Walmart Annual Reports

FIGURE 1.3 Walmart 5-Year Financial Summary

(Dollar amounts in millions, except per share and unit count data)

As of and for the Fiscal Years Ended January 31,	2012	2011	2010	2009	2008
Operating Results					
Net sales	**$443,854**	$418,952	$405,132	$401,087	$373,821
Net sales increase	**5.9%**	3.4%	1.0%	7.3%	8.4%
Increase (decrease) in calendar comparable sales [1]					
in the United States	**1.6%**	(0.6)%	(0.8)%	3.5%	1.6%
Walmart U.S.	**0.3%**	(1.5)%	(0.7)%	3.2%	1.0%
Sam's Club	**8.4%**	3.9%	(1.4)%	4.9%	4.9%
Gross profit margin	**24.5%**	24.8%	24.9%	24.3%	24.1%
Operating, selling, general and administrative expenses, as a percentage of net sales	**19.2%**	19.4%	19.7%	19.4%	19.1%
Operating income	**$ 26,558**	$ 25,542	$ 24,002	$ 22,767	$ 21,916
Income from continuing operations attributable to Walmart	**15,766**	15,355	14,449	13,235	12,841
Net income per share of common stock:					
Diluted net income per common share from continuing operations attributable to Walmart	**$ 4.54**	$ 4.18	$ 3.73	$ 3.35	$ 3.15
Dividends declared per common share	**1.46**	1.21	1.09	0.95	0.88
Financial Position					
Inventories	**$ 40,714**	$ 36,437	$ 32,713	$ 34,013	$ 34,690
Property, equipment and capital lease assets, net	**112,324**	107,878	102,307	95,653	96,867
Total assets	**193,406**	180,782	170,407	163,096	163,200
Long-term debt, including obligations under capital leases	**47,079**	43,842	36,401	34,549	33,402
Total Walmart shareholders' equity	**71,315**	68,542	70,468	64,969	64,311
Unit Counts					
Walmart U.S. Segment	**3,868**	3,804	3,755	3,703	3,595
Walmart International Segment	**5,651**	4,557	4,099	3,595	3,093
Sam's Club Segment	**611**	609	605	611	600
Total units	**10,130**	8,970	8,459	7,909	7,288

(1) Comparable store and club sales include fuel. Fiscal 2008 comparable sales include all stores and clubs that were open for at least the previous 12 months; however, stores and clubs that were relocated, expanded or converted are excluded from comparable sales for the first 12 months following the relocation, expansion or conversion. Fiscal 2012, 2011, 2010 and 2009 comparable sales include sales from stores and clubs open for the previous 12 months, including remodels, relocations and expansions, as well as online sales.

If you continue to scroll through the company's annual report, you will find the complete income statement on page 32. You will also notice that it is properly labeled as "Consolidated Statement of Income." We will use the income statement found in Figure 1.4 to analyze Walmart's historical financial position. It is standard to have three years of financials in a company model, so we will create a model from years 2010 to 2012.

FIGURE 1.4 Walmart Income Statement

(Amounts in millions except per share data)	Fiscal Years Ended January 31, 2012	2011	2010
Revenues:			
Net sales	$443,854	$418,952	$405,132
Membership and other income	3,096	2,897	2,953
	446,950	421,849	408,085
Costs and expenses:			
Cost of sales	335,127	314,946	304,106
Operating, selling, general and administrative expenses	85,265	81,361	79,977
Operating income	26,558	25,542	24,002
Interest:			
Debt	2,034	1,928	1,787
Capital leases	288	277	278
Interest income	(162)	(201)	(181)
Interest, net	2,160	2,004	1,884
Income from continuing operations before income taxes	24,398	23,538	22,118
Provision for income taxes:			
Current	6,742	6,703	7,643
Deferred	1,202	876	(487)
	7,944	7,579	7,156
Income from continuing operations	16,454	15,959	14,962
Income (loss) from discontinued operations, net of tax	(67)	1,034	(79)
Consolidated net income	16,387	16,993	14,883
Less consolidated net income attributable to noncontrolling interest	(688)	(604)	(513)
Consolidated net income attributable to Walmart	$ 15,699	$ 16,389	$ 14,370
Basic net income per common share:			
Basic income per common share from continuing operations attributable to Walmart	$ 4.56	$ 4.20	$ 3.74
Basic income (loss) per common share from discontinued operations attributable to Walmart	(0.02)	0.28	(0.02)
Basic net income per common share attributable to Walmart	$ 4.54	$ 4.48	$ 3.72
Diluted net income per common share:			
Diluted income per common share from continuing operations attributable to Walmart	$ 4.54	$ 4.18	$ 3.73
Diluted income (loss) per common share from discontinued operations attributable to Walmart	(0.02)	0.29	(0.02)
Diluted net income per common share attributable to Walmart	$ 4.52	$ 4.47	$ 3.71
Weighted-average common shares outstanding:			
Basic	3,460	3,656	3,866
Diluted	3,474	3,670	3,877
Dividends declared per common share	$ 1.46	$ 1.21	$ 1.09

See accompanying notes.

Revenue

When looking at the income statement in Figure 1.4, you want to first identify all the major line items as referenced earlier in this chapter, beginning with sales. We can see that Walmart has two lines of Revenues: "Net sales" and "Membership and other income." We will list both separately.

Now is a good time to open up the model template titled "NYSF—Walmart—Template.xls." Notice the first six "tabs" each represent a financial schedule we will build to properly analyze the business. A well-built model contains at least these six major statements:

1. Income statement
2. Cash flow statement
3. Balance sheet
4. Depreciation schedule
5. Working capital schedule

6. Debt schedule

For this chapter, we will focus on the Income statement tab. In this tab, we can enter the three years of each revenue stream, as shown in Figure 1.4. We will simply "hardcode" or type the numbers directly into the model as represented in the annual report.

Before doing so, it is important to mention the first two important rules of modeling etiquette:

1. All hardcoded numbers and assumption drivers should be entered in blue font.

2. All formulas should be entered in black font.

When we mention hardcoded numbers, we mean numbers that are typed directly into a cell (that is, not links or formulas). All other formulas in the model are dependent on hardcodes, so should remain black. So, for example, the historical numbers we will now enter are hardcoded. These should be colored blue. But, the formulas that are simply summing hardcoded numbers should be in black font, as those are formulas. This is a standard on the Street and makes a model easier to analyze. It is important to be able to quickly zero in on the numbers and assumptions that drive the model projections (the blue numbers).

So, in Row 7, marked "Net Sales, " we can type in 405, 132; 418, 952; and 443, 854 for 2010, 2011, and 2012, or cells D7, E7, and F7, respectively. Remember to color the font of these blue, as they are hard codes. Later, we will look to the company's historical trends as a clue to estimating projections. So, let's calculate the historical growth of the company's net sales. The formula for growth in a current year is:

Current Year / Previous Year – 1

So we can calculate the 2011 net sales growth by entering the following into Cell E8:

Calculating 2011 Net Sales Growth (Cell E8)

Excel Key Strokes	Description
type "="	Enters into "formula" mode
select Cell E7	2011 Net Sales
type "/"	Divides
select Cell D7	2010 Net Sales
type "-1"	Subtracts 1
type "Enter"	End
Formula Result	=E7/D7–1

This should give you a 3.4 percent net sales growth in 2011. This process can be repeated for the net sales in 2012, or you can simply cut and paste the 2012 formula and copy it to the right. There are several ways to copy formulas to the right:

1. Click and drag the 2011 formula over to 2012. With the mouse, you can select the bottom right corner of Cell E8, and while holding down the left mouse button, you can drag the formula over to Cell F8.

2. Select the 2011 Net Sales Growth in Cell E8. Select "Copy" from the menu bar (or hit "Ctrl" + "C"). Then select the 2012 Net Sales Growth (Cell F8), and select "Paste" from the menu bar (or hit "Ctrl" + "V").

3. Preferred method:

    a. Highlight both the 2011 Net Sales Growth in Cell E8 and the empty 2012 Net Sales Growth in Cell F8. This can either be done two ways:

i. With the mouse: by selecting Cell E8, making sure to select the center of the cell not the bottom right corner, and while holding down the left mouse button continue to move the mouse to the right, or;

ii. With the keyboard: by selecting Cell E8, then holding down the "Shift" key while tapping the right arrow until the desired cells are selected.

b. Hit "Ctrl" + "R, " which stands for "copy right."

Modeling Tip

We strongly recommend you use keyboard hotkeys (such as "Ctrl" + "R") as often as possible. The more comfortable you become with using the keyboard as opposed to the mouse, the more efficient a modeler you will become. (Please see Appendix 3 for a list of Excel hotkeys.)

TABLE 1.1 Walmart Historical Net Sales

Consolidated Income Statements (in U.S.$ millions except per share amounts)			
	Actuals		
Period Ending January 31	2010A	2011A	2012A
Revenue			
Net sales	405,132.0	418,952.0	443,854.0
% Growth		*3.4%*	*5.9%*

Note there is also a hotkey called "Ctrl" + "D, " which stands for Copy Down. Unfortunately there is no Copy Left or Copy Up.

See Table 1.1.

We can now continue by entering the "Membership and Other Income" numbers, and calculating the respective growth as we had done with the net sales.

We can then total the two sales line items into the total revenue line in Row 11. (See Table 1.2.)

Calculating 2010 Total Revenue (Cell D11)

Excel Key Strokes	Description
type "="	Enters into "formula" mode
select Cell D7	2010 Net Sales
type "+"	Adds
select Cell D9	2010 Membership and Other Income

type “Enter”	End
Formula result	=D7+D9

TABLE 1.2 Walmart Historical Total Revenue

Consolidated Income Statements (in U.S.$ millions except per share amounts)			
	Actuals		
Period Ending January 31	**2010A**	**2011A**	**2012A**
Revenue			
Net sales	405,132.0	418,952.0	443,854.0
% Growth		*3.4%*	*5.9%*
Membership and other income	2,953.0	2,897.0	3,096.0
% Growth		*−1.9%*	*6.9%*
Total revenue	**408,085.0**	**421,849.0**	**446,950.0**
Y/Y revenue growth (%)		*3.4%*	*6.0%*

This will give us $408, 085.0 in total revenue for Walmart in 2010. We can now calculate total revenue growth using the same growth formulas as demonstrated prior. We can also copy these formulas to the right through 2012 using one of the previous copy methods. (See Table 1.2.)

Getting to EBITDA

Below the revenue section we see “Cost of Sales” and “Operating, Selling, General, and Administrative Expenses.” When referencing the categories earlier in this chapter, we see “Cost of Sales” as category 2, and “Operating Expenses” as category 3, which will directly refer to “Cost of Sales” and “Operating, Selling, General, and Administrative Expenses, ” respectively, from the above income statement. Ideally, there would be a more detailed breakout of the costs, and if there was, I would recommend listing each cost line item in an operating expense section, much like what we had done with revenue. It is worth doing a quick word search on “expense” or “operating expense” in the annual report to see if there is a more detailed table listing the individual expenses.

Digging up Depreciation

When identifying all expenses on an income statement, it is important to also locate the depreciation expense. Companies that have depreciating assets would generally record that depreciation as an expense to reduce taxes. So, if a company has depreciation, it should be represented on the income statement. However, not every company lists depreciation as a separate line item. A good analyst needs to do some more hunting to locate depreciation. Walmart certainly depreciates its assets. If you are unsure if the company you are analyzing depreciates assets you should research the company’s assets. An easy way to begin is by performing a word search for “depreciation” on the company’s annual report, or you can go to the cash flow statement to see if a depreciation line item exists. Depreciation is located in several places in the company’s annual report. In Figure 1.5 we have used the example from page 52 of the company’s annual report. This appears to be a financial breakout of the company’s operating business units.

As we are building a model to represent the consolidated business, we want total depreciation for the whole business. In Figure 1.5 we can see depreciation and amortization for the consolidated business is $8, 130; $7, 641; and $7, 157 for 2012, 2011, and 2010, respectively. It is also good to know that page 35 of the annual report, the cash flow statement shows depreciation

of the exact same amount. This is a good cross-check. However, it is important to note there are advanced accounting rules that can cause differences between depreciation shown on the cash flow statement and in other sections of the company financials.

FIGURE 1.5 Walmart Operations by Segment

(Amounts in millions)	Walmart U.S.	Walmart International	Sam's Club	Other Unallocated	Consolidated
Fiscal Year Ended January 31, 2012					
Net sales	**$264,186**	**$125,873**	**$53,795**	**$ —**	**$443,854**
Operating income (loss)	**20,367**	**6,214**	**1,865**	**(1,888)**	**26,558**
Interest expense, net					**(2,160)**
Income from continuing operations before income taxes					**$ 24,398**
Total assets of continuing operations	**$ 93,050**	**$ 81,364**	**$12,823**	**$ 6,080**	**$193,317**
Depreciation and amortization	**4,794**	**2,470**	**611**	**255**	**8,130**
Capital expenditures	**6,571**	**5,275**	**842**	**822**	**13,510**
Fiscal Year Ended January 31, 2011					
Net sales	$ 260,261	$ 109,232	$ 49,459	$	$ 418,952
Operating income (loss)	19,919	5,606	1,711	(1,694)	25,542
Interest expense, net					(2,004)
Income from continuing operations before income taxes					$ 23,538
Total assets of continuing operations	$ 89,725	$ 72,021	$ 12,531	$ 6,255	$ 180,532
Depreciation and amortization	4,619	2,184	594	244	7,641
Capital expenditures	7,328	3,994	711	666	12,699
Fiscal Year Ended January 31, 2010					
Net sales	$ 259,919	$ 97,407	$ 47,806	$	$ 405,132
Operating income (loss)	19,314	4,901	1,515	(1,728)	24,002
Interest expense, net					(1,884)
Income from continuing operations before income taxes					$ 22,118
Total assets of continuing operations	$ 84,238	$ 66,515	$ 12,050	$ 7,464	$ 170,267
Depreciation and amortization	4,352	1,979	558	268	7,157
Capital expenditures	6,618	3,832	793	941	12,184

Once we have identified depreciation, we have to determine where that depreciation is in the income statement. We have proven depreciation exists, and we assume it must be somewhere in the income statement, although not directly shown. Be careful not to simply add the depreciation expense to the income statement. The depreciation amounts we have found previously are most likely buried in one of the expense items we have already identified. But how do we know which expense line item contains depreciation? Unfortunately, in many cases, it may not be easy to tell. A word search on "depreciation" may reveal a note describing where that item is expensed on the income statement. In Walmart's case, it does not. Quite often depreciation is a part of cost of goods sold or sales, general, and administrative expenses, or spread out between the two. It is also often that one cannot identify exactly where depreciation is buried. It should be comforting to know, however, that whether we end up extracting the depreciation expense from cost of goods sold; sales, general, and administrative expenses; or both, it will not affect our EBITDA, which is most crucial for our valuation. So in this example let us assume depreciation is a component of sales, general, and administrative expenses. Another clue is a paragraph on page 20 of the annual report that identifies depreciation within the operating expenses section. Although a helpful clue, this is no proof. Page 20 of Walmart's
2012 annual report notes:

Operating Expenses

We leveraged operating expenses in fiscal 2012 and 2011. In fiscal 2012, our operating expenses increased 4.8% compared to fiscal 2011, while net sales increased 5.9% in fiscal 2012 compared to fiscal 2011. Operating expenses grew at a slower rate than net sales due to our continued focus on expense management. Our Global eCommerce initiatives contributed to the majority of the increase in operating expenses, as we continue to invest in our e-commerce platforms. Depreciation expense increased year-over-year based on our financial system investments with the remainder of the increase being driven by multiple items, none of which were individually significant. In fiscal 2011, our operating expenses increased 1.7% compared to fiscal 2010, while net sales increased 3.4% during fiscal 2011 compared to fiscal 2010. Operating expenses grew at a slower rate than net sales in fiscal

2011 due to improved labor productivity and organizational changes made at the end of fiscal 2010 designed to strengthen and streamline our operations, as well as a reduction in certain incentive plan expenses.

So assuming depreciation was a component of sales, general, and administrative expenses, we will reduce the amount of those expenses by the value of depreciation. So, in 2012, sales, general, and administrative expenses will be reduced from $85, 265 to $77, 135 ($85, 265 – $8, 130). We will make similar adjustments in 2011 and 2010.

We now have enough information to lay out a historical income statement for three years down to EBITDA.

Cost of Goods Sold

Walmart reports cost of goods sold (COGS) as "Cost of Sales, " and records 304, 106; 314, 946; and 335, 127, for 2010, 2011, and 2012, respectively. Let us type those numbers into Cells D14, E14, and F14 now.

Notice there is a metric, "COGS as a % of Revenue, " in row 15. We will discuss later how calculating an expense as a percentage of revenue may or may not be a good indicator of future performance. To best prepare us for that discussion, let's calculate this metric now. The 2010 COGS as a percentage of revenue will be:

Calculating 2010 Cost of Goods Sold (Cell D15)

Excel Key Strokes	**Description**
type "="	Enters into "formula" mode
select Cell D14	2010 COGS
type "/"	Divides
select Cell D11	2010 Total Revenue
type "Enter"	End
Formula Result	=D14/D11

This gives us 74.5 percent in 2010. We can now copy this formula to the right.

Gross Profit

Gross profit is revenue less cost of goods sold.

Calculating 2010 Gross Profit (Cell D16)

Excel Key Strokes	**Description**
type "="	Enters into "formula" mode
select Cell D11	2010 Total Revenue
type "-"	Subtracts
select Cell D14	2010 COGS
Type "Enter"	End
Formula Result	=D11-D14

We can calculate the gross profit margin as explained earlier in this chapter.

Calculating 2010 Gross Profit Margin (Cell D17)	
Excel Key Strokes	**Description**
type "="	Enters into "formula" mode
select Cell D16	2010 Gross Profit
type "/"	Divides
select Cell D11	2010 Total Revenue
type "Enter"	End
Formula Result	=D16/D11

TABLE 1.3 Walmart Historical Gross Profit

Consolidated Income Statements (in U.S.$ millions except per share amounts)			
		Actuals	
Period Ending January 31	2010A	2011A	2012A
Revenue			
Net sales	405,132.0	418,952.0	443,854.0
% Growth		*3.4%*	*5.9%*
Membership and other income	2,953.0	2,897.0	3,096.0
% Growth		*–1.9%*	*6.9%*
Total revenue	**408,085.0**	**421,849.0**	**446,950.0**
Y/Y revenue growth (%)		*3.4%*	*6.0%*
Cost of goods sold			
Cost of goods sold	304,106.0	314,946.0	335,127.0
COGS as a % of revenue	*74.5%*	*74.7%*	*75.0%*
Gross profit	**103,979.0**	**106,903.0**	**111,823.0**
Gross profit margin (%)	*25.5%*	*25.3%*	*25.0%*

We can copy both formulas to the right and move on to Operating Expenses (as shown in Table 1.3).

Selling, General, and Administrative Expenses

Walmart defines selling, general, and administrative expenses (SG&A) as "operating, selling, general and administrative expenses." Given the previous discussion, we have assumed the depreciation expense is contained within the SG&A. So in row 19, we should hardcode the operating, selling, general and administrative expenses less the depreciation expense; in 2010, we should have 79977 – 7157. We can continue to hardcode in the operating, selling, general and administrative expenses less the depreciation expense in 2011 and 2012. We can then calculate these expenses as a percentage of revenue as we had done with the Cost of Goods Sold. See Table 1.4 as a guide.

Other Income

We note Walmart does not have any other income line items separated out.

EBITDA

We can now calculate EBITDA as gross profit less the operating expenses.

Calculating 2010 EBITDA (Cell D21)

Excel Key Strokes	**Description**
type “=”	Enters into “formula” mode
select Cell D16	2010 Gross Profit
type “-”	Subtracts
select Cell D19	2010 Operating Expenses
type “Enter”	End
Formula Result	=D16-D19

We can calculate the EBITDA margin as explained earlier in this chapter.

Calculating 2010 EBITDA Margin (Cell D22)

Excel Key Strokes	**Description**
type “=”	Enters into “formula” mode
select Cell D21	2010 EBITDA
type “/”	Divides
select Cell D11	2010 Total Revenue
type “Enter”	End
Formula Result	=D21/D11

We can copy both formulas to the right. (See Table 1.4.)

Beyond EBITDA

Once we have EBITDA, we can continue identifying the rest of Walmart’s income statement line items.

Depreciation and Amortization

We have already identified the depreciation as 7, 157, 7, 641, and 8, 130 for 2010, 2011, and 2012, respectively. We can hardcode these into Row 23.

EBIT

EBIT is EBITDA less depreciation. We can also calculate the EBIT margin as we have done previously.

TABLE 1.4 Walmart Historical EBITDA

Consolidated Income Statements (in U.S.$ millions except per share amounts)			
	Actuals		
Period Ending January 31	**2010A**	**2011A**	**2012A**
Revenue			
Net sales	405,132.0	418,952.0	443,854.0
% Growth		*3.4%*	*5.9%*
Membership and other income	2,953.0	2,897.0	3,096.0
% Growth		*–1.9%*	*6.9%*
Total revenue	**408,085.0**	**421,849.0**	**446,950.0**
Y/Y revenue growth (%)		*3.4%*	*6.0%*
Cost of goods sold			
Cost of goods sold	304,106.0	314,946.0	335,127.0
COGS as a % of revenue	*74.5%*	*74.7%*	*75.0%*
Gross profit	**103,979.0**	**106,903.0**	**111,823.0**
Gross profit margin (%)	*25.5%*	*25.3%*	*25.0%*
Operating expenses			
Selling, general and administrative	72,820.0	73,720.0	77,135.0
SG&A as a % of revenue	*17.8%*	*17.5%*	*17.3%*
EBITDA	**31,159.0**	**33,183.0**	**34,688.0**
EBITDA margin (%)	*7.6%*	*7.9%*	*7.8%*

Interest

Walmart has three lines of interest: Debt, which in this case is interest expense; Capital leases, which is the interest related to their capital leases; and Interest income. Note that interest income, although in parenthesis, is actually increasing EBIT. This is an example of how one needs to make sure the income statement line items are flowing properly. We will, at the end of the income statement, make sure we can match the net income we calculate to Walmart's net income to insure all is flowing properly. Hardcode these line items into the model and calculate the total interest expense by summing all three interest line items. Note the hotkey "Alt" + "=" is a quick way to automatically sum line items. Refer to Table 1.5 as a guide.

EBT

Remember EBIT – Interest = EBT, and EBT margin is EBT / Total Revenue. Calculate EBT and refer to Table 1.5 as a guide.

Taxes

Take note of the total number of taxes on Walmart's income statement. Walmart has defined two items of taxes, "Current" and "Deferred." We will talk about deferred taxes in Chapter 3. For taxes, we can just hardcode the totals into Row 33. Refer to Table 1.5.

The tax rate is calculated as taxes divided by EBT.

Calculating 2010 Tax Rate (Cell D34)	
Excel Key Strokes	**Description**
type "="	Enters into "formula" mode
select Cell D33	2010 Income Tax Expense
type "/"	Divides
select Cell D31	2010 EBT
type "Enter"	End
Formula Result	=D33/D31

We can now copy this formula to the right.

Net Income

Remember EBT – Taxes = Net Income. Calculate this formula and copy to the right. This number should match the "Income from continuing operations" from Walmart's income statement. (See Figure 1.4.)

Non-Recurring Events

Walmart has one non-recurring event line item: income (loss) from discontinued operations. This represents any gains or losses resulting from Walmart closing or discontinuing a portion of its business. Page 49 of Walmart's annual report explains the specific situation as follows:

> ***Discontinued Operations***
>
> *At January 31, 2010, the Company had an unrecognized tax benefit of $1.7 billion related to an ordinary worthless stock deduction from the fiscal 2007 disposition of its German operations. During the fourth quarter of fiscal 2011, this matter was effectively settled with the Internal Revenue Service, which resulted in the reclassification of the deduction as an Ordinary loss, a capital loss that the Company has fully offset with a Valuation allowance, and a reduction in the accumulated but undistributed earnings of an international subsidiary. In connection with this settlement, the Company recorded a $1.0 billion tax benefit in discontinued operations in the Company's Consolidated Statements of Income (see Note 14) and a reduction of its accrued income tax liability in the Company's Consolidated Balance Sheet at January 31, 2011. In addition, during fiscal 2012, tax and related interest expense of $67 million was recorded to Discontinued operations related to audit adjustments and amended returns from this settlement for U.S. federal and state income tax purposes.*

TABLE 1.5 Walmart Historical Adjusted Net Income

Consolidated Income Statements (in U.S.$ millions except per share amounts)			
	Actuals		
Period Ending January 31	2010A	2011A	2012A
Revenue			
Net sales	405,132.0	418,952.0	443,854.0
% Growth		*3.4%*	*5.9%*
Membership and other income	2,953.0	2,897.0	3,096.0
% Growth		*–1.9%*	*6.9%*
Total revenue	408,085.0	421,849.0	446,950.0
Y/Y revenue growth (%)		*3.4%*	*6.0%*
Cost of goods sold			
Cost of goods sold	304,106.0	314,946.0	335,127.0
COGS as a % of revenue	*74.5%*	*74.7%*	*75.0%*
Gross profit	103,979.0	106,903.0	111,823.0
Gross profit margin (%)	*25.5%*	*25.3%*	*25.0%*
Operating expenses			
Selling, general and administrative	72,820.0	73,720.0	77,135.0
SG&A as a % of revenue	*17.8%*	*17.5%*	*17.3%*
EBITDA	31,159.0	33,183.0	34,688.0
EBITDA margin (%)	*7.6%*	*7.9%*	*7.8%*
Depreciation and amortization	7,157.0	7,641.0	8,130.0
EBIT	24,002.0	25,542.0	26,558.0
EBIT margin (%)	*5.9%*	*6.1%*	*5.9%*
Interest			
Interest expense (debt)	1,787.0	1,928.0	2,034.0
Interest expense (capital leases)	278.0	277.0	288.0
Interest income	(181.0)	(201.0)	(162.0)
Net interest expense	1,884.0	2,004.0	2,160.0
EBT	22,118.0	23,538.0	24,398.0
EBT margin (%)	*5.4%*	*5.6%*	*5.5%*
Income tax expense	7,156.0	7,579.0	7,944.0
Tax rate (%)	*32.4%*	*32.2%*	*32.6%*
Net income (adjusted)	14,962.0	15,959.0	16,454.0

So in the non-recurring events section, we can hardcode the -79, 1034, and -67 into 2010, 2011, and 2012, respectively. We can keep the other non-recurring event line items as 0, and calculate the total.

Net Income (after Non-Recurring Events)

We can now calculate the net income (after non-recurring events) as net income plus non-recurring events.

Again, be careful of how these non-recurring items should be flowing into the net income. The - 67 of non-recurring events in 2012, for example, is actually reducing our net income number, so these line items should effectively be adding into our net income. Some analysts prefer to reverse the logic by flipping the signs from negative to positive, and continuing to subtract the total non-recurring events. There is no absolute correct way, as long as the total net income at the bottom of the income statement matches the annual report. (See Table 1.6)

Distributions

Walmart's line item "Consolidated net income attributable to non-controlling interests" is effectively non-controlling interest. We can hardcode this into Row 42.

Non-controlling interest is typically paid out as a percentage of net income, so in order to make our projections we will calculate the metric in Row 43, "Non-controlling interests % of net income."

Don't overlook typing "=" then a minus sign. We need to reverse the sign of the negative values otherwise we will have a negative percentage. You can now copy this formula to the right.

Calculating 2010 Non-Controlling Interests % of Net Income (Cell D43)

Excel Key Strokes	**Description**
type "="	Enters into "formula" mode
type "-"	Reverses the sign of the numerator to make it positive
select Cell D42	2010 Non-Controlling Interests
type "/"	Divides
select Cell D40	2010 Net Income
type "Enter"	End
Formula Result	=-D42/D40

Net Income (as Reported)

We can now calculate the net income (as reported) as net income (after non-recurring events) plus non-controlling interests.

Again, be careful of how these non-controlling interests should be flowing into net income. (See Table 1.6.)

Shares and EPS

We can hardcode in the basic and diluted shares as Walmart has reported into Rows 49 and 50 before calculating EPS. We can then calculate the basic EPS by dividing the net income (as reported) by the number of basic shares outstanding, and the diluted EPS by dividing the net income (as reported) by the number of diluted shares outstanding. The purpose of calculating EPS

here is to ensure we have metrics that match what the company reported for accuracy in our analysis. It is, however, common to calculate EPS using our adjusted net income depending on the purpose of the analysis.

Calculating 2010 Basic EPS (Cell D46)

Excel Key Strokes	Description
type “=”	Enters into “formula” mode
select Cell D44	2010 Net Income (as reported)
type “/”	Divides
select Cell D49	2010 Shares
type “Enter”	End
Formula Result	=D44/D49

We repeat the same process for the diluted EPS, using diluted shares in place of basic shares. (See Table 1.6.)

TABLE 1.6 Walmart Historical Income Statement

Consolidated Income Statements (in U.S.$ millions except per share amounts)

	Actuals		
Period Ending January 31	**2010A**	**2011A**	**2012A**
Revenue			
Net sales	405,132.0	418,952.0	443,854.0
% Growth		*3.4%*	*5.9%*
Membership and other income	2,953.0	2,897.0	3,096.0
% Growth		*–1.9%*	*6.9%*
Total revenue	**408,085.0**	**421,849.0**	**446,950.0**
Y/Y revenue growth (%)		*3.4%*	*6.0%*
Cost of goods sold			
Cost of goods sold	304,106.0	314,946.0	335,127.0
COGS as a % of revenue	*74.5%*	*74.7%*	*75.0%*
Gross profit	**103,979.0**	**106,903.0**	**111,823.0**
Gross profit margin (%)	*25.5%*	*25.3%*	*25.0%*
Operating expenses			
Selling, general and administrative	72,820.0	73,720.0	77,135.0
SG&A as a % of revenue	*17.8%*	*17.5%*	*17.3%*
EBITDA	**31,159.0**	**33,183.0**	**34,688.0**
EBITDA margin (%)	*7.6%*	*7.9%*	*7.8%*
Depreciation and amortization	7,157.0	7,641.0	8,130.0
EBIT	**24,002.0**	**25,542.0**	**26,558.0**
EBIT margin (%)	*5.9%*	*6.1%*	*5.9%*
Interest			
Interest expense (debt)	1,787.0	1,928.0	2,034.0
Interest expense (capital leases)	278.0	277.0	288.0
Interest income	(181.0)	(201.0)	(162.0)
Net interest expense	**1,884.0**	**2,004.0**	**2,160.0**
EBT	22,118.0	23,538.0	24,398.0
EBT margin (%)	*5.4%*	*5.6%*	*5.5%*
Income tax expense	7,156.0	7,579.0	7,944.0
Tax rate (%)	*32.4%*	*32.2%*	*32.6%*

Consolidated Income Statements (in U.S.$ millions except per share amounts)			
	Actuals		
Period Ending January 31	2010A	2011A	2012A
Net income (adjusted)	**14,962.0**	**15,959.0**	**16,454.0**
Non-recurring events			
Discontinued operations	(79.0)	1,034.0	(67.0)
Other	0.0	0.0	0.0
Total non-recurring events	**(79.0)**	**1,034.0**	**(67.0)**
Net income (after non-recurring events)	**14,883.0**	**16,993.0**	**16,387.0**
Distributions			
Income attributable to non-controlling interests	(513.0)	(604.0)	(688.0)
Non-controlling interests % of Net Income	*3.4%*	*3.6%*	*4.2%*
Net income (as reported)	**14,370.0**	**16,389.0**	**15,699.0**
Earnings per share (EPS)			
Basic	3.72	4.48	4.54
Diluted	3.71	4.47	4.52
Average common shares outstanding			
Basic	3,866	3,656	3,460
Diluted	3,877	3,670	3,474

INCOME STATEMENT—MAKING PROJECTIONS

Making projections is no easy task. One needs to spend much time understanding and researching the core business model, how it generates revenue, its cost structure, and beyond to best get a handle on the next years of its performance. Ideally, a Wall Street research analyst will have had years of experience following and keeping close watch on the business, and would have a good handle on its future trends in order to make good projections. That being said, there are methods to make fair generalizations, though broad, but strong enough to use as tools to assess overall company valuation. Remember: A good model is a functional and flexible one, and is one that is designed to easily be adjusted, to grow, and to evolve as we gain more knowledge and insight into the inner workings of business, therefore slowly honing on a perfect valuation.

Revenue

Revenue, for example, can be quite difficult to predict. Walmart posted $446, 950 million dollars

in 2012 total revenue, a 6.0 percent increase from 2011. How will we know what revenue will be in 2013? The truth is, it is almost impossible to be 100 percent sure. We will need to make an assumption with the understanding that that assumption will come with a degree of uncertainty, and may therefore change.

So how can you best make rational predictions for 2013? It is important to research and understand the company's business model, gathering as much information as you can to make your own best judgment. Revenue, for example, is almost always driven by a product of pricing and volume. So, when thinking about projecting revenue, your research should focus on understanding the company's pricing and volume. What initiatives is the company taking to increase its volume in 2013? Is it increasing its advertising? Is it acquiring other businesses or customers? What outside forces could affect the company's pricing model? Is it increasing its prices? Is it facing tremendous market competition and must lower its prices?

In addition to the research, we recommend the following sources:

1. Investor presentations. Try to look for a recent investor presentation on the investor relations section of the company web site. These presentations are typically designed to explain recent and future performance to existing or future investors of the company's stock. These presentations can contain high-level projections.

2. Earnings calls. One can easily find when the next earnings call is on the investor relations section of the web site. At the earnings call, you can listen to the management speak about the company's most recent financial performance. Management also sometimes gives guidance on the company's future performance.

3. Wall Street research. If you can get your hands on an equity research report, written by a Wall Street analyst who has followed the company for several years, that report would contain estimated future performance.

4. Data sources. Yahoo! Finance, Thomson, First Call, and Bloomberg are examples of data sources that contain Wall Street consensus estimates. Yahoo! Finance is a free resource, so, if you do not have access to a paid service, this can serve as a good reference.

These are just several examples of where one can get guidance. We recommend not depending on any one single source of information, but gathering as many sources as you can and cross-checking with your research to make the strongest educated estimates as possible.

For purposes of this analysis, and knowing that the research can take a considerable amount of time, we can take a first-guess assumption and leave the detailed research for once the model is complete. We can, for example, assume that revenue will continue to grow at its historical 6 percent rate into 2013.

We can also go to a data source such as Yahoo! Finance. One can, for example, go to finance.yahoo.com and type "WMT" (the ticker for Walmart) in the "Finance Search" bar. There is a lot of great information here that can be used as a first cut assumption. It is not the best source, but it is a free source, so it is a good starting point. On the left, we can select "Analyst Estimates."

This data is a consensus by several Wall Street analysts who follow Walmart. (See Figure 1.6.) The second table from the top, entitled "Revenue Est, " gives us the consensus revenue. On the far right, we can see the average revenue estimates for 2013 and 2014 are $472.51Bn and $496.24Bn, respectively. It is also important to note the high and low estimates underneath the average.

As a "first cut" we should expect our projected revenue to be within the high and low range, and near the average. (It does not have to exactly match exactly.) So, our earlier assumption of taking last year's 6.0 percent growth for 2013 ($446, 950 $\times$ 1.06) will give us $473, 767—well within the range posted and quite close to the average. So let's use this for now. Continuing the 6.0 percent growth in 2014 will give us $502, 193 ($473, 767 $\times$ 1.06)—again, within the range and close to the average for 2014. This method, of course, needs to be adjusted based on all our

further research on the company. It is not recommended or safe to make the general assumption that last year's growth will equal this year's or next year's without further research. So we will note that our assumption of taking 6.0 percent is pending further research.

FIGURE 1.6 Yahoo! Finance WMT Estimates

Note that this information changes frequently. If you find this information online yourself it is likely to have changed. If you are building the model as you are reading this book, which we recommend, you should use the data in the exhibits found in this book in order to match your numbers to our solution.

In this model we are going to project the total revenue, not the individual revenue line items "Net sales" and "Membership and other income." It is up to you to decide how detailed you would like your analysis to be. In many cases revenue can be broken out by product, volume, and even geography. It is also not uncommon to have a completely separate revenue schedule and analysis that will feed into the income statement. Let's keep our revenue projections at this high level for now until we decide further detail is needed.

We can now start inputting our revenue projections into Excel.

So, we can type 6.0 percent into Cell G12. 6.0% is a hardcode and an assumption driver, so remember to color the font blue. This percent will drive the actual 2013 total revenue projection. We want the 2013 total revenue to be driven off of our assumption or:

$$\text{2013 Total Revenue} = \text{2012 Total Revenue} \times (1 + \text{2013 Revenue Growth Assumption})$$

Calculating 2013 Total Revenue (Cell G11)

Excel Key Strokes	Description
type "="	Enters into "formula" mode
select Cell F11	2013 Total Revenue
type "*"	Multiplies
type "(1 +"	Begins the (1 + x%) portion of

	the formula
select Cell G12	2012 Growth Assumption
type “)”	Closes the (1 + x%) portion of the formula
type “Enter”	End
Formula Result	=F11*(1+G12)

This will give us 2013 total revenue of $473, 767.0. We can copy Cell G11 and G12 to the right all the way through 2017. (See Table 1.7.)

TABLE 1.7 Walmart Projected Revenue

Consolidated Income Statements (in U.S.$ millions except per share amounts)								
	Actuals			Estimates				
Period Ending January 31	2010A	2011A	2012A	2013E	2014E	2015E	2016E	2017E
Revenue								
Net sales	405,132.0	418,952.0	443,854.0					
% Growth		*3.4%*	*5.9%*					
Membership and other income	2,953.0	2,897.0	3,096.0					
% Growth		*−1.9%*	*6.9%*					
Total revenue	408,085.0	421,849.0	446,950.0	473,767.0	502,193.0	532,324.6	564,264.1	598,119.9
Y/Y revenue growth (%)		*3.4%*	*6.0%*	*6.0%*	*6.0%*	*6.0%*	*6.0%*	*6.0%*

Cost of Goods Sold

Next let’s look at the costs. Again, fully understanding and researching each cost is important in best estimating its future performance. However, such detail may be as difficult to project as the revenue. There are a couple of ways to estimate future costs. First, it is important to consider whether the costs are fixed or variable. A fixed cost is relatively static and may grow a certain percentage year over year. Rent, for example, can be considered a fixed cost as it may only increase 5–10 percent each year, independent of the growth in revenue. In contrast, a variable cost will increase in direct proportion to the growth of the business, most commonly determined by the revenue growth. In other words, if the revenue is increasing by 10 percent, the costs will also increase by 10 percent. If the revenue decreases by 4 percent, the costs will also decrease by 4 percent.

Quite often cost of goods sold is considered a variable cost. If your revenue is declining, you are most likely selling less product, so your costs should also be decreasing. Conversely, if your revenue is increasing, you are most likely selling more product, so cost of goods sold should be increasing in direct proportion to the revenue. There are, however, exceptions. For example, a revenue increase could be due to an increase in pricing, not because more product has been sold. In this case maybe costs should not be increasing at all (no change in volume). Or, a further twist, maybe the company is raising its prices because the manufacturer who is providing raw materials has raised its prices, so effectively both revenue and costs should be increasing proportionally. This is where a deeper understanding of the company’s business model and cost structure comes in handy.

Historical trends can help us determine how best to make initial projections, with the knowledge that we can later tweak as we build a more fundamental understanding of the business. If we analyze the historical cost of goods sold as a percentage of revenue over the past three years, we notice the costs have been around 75 percent of total revenue each year. This consistent trend is a strong indicator that the cost of goods sold could be variable, growing at the same rate as revenue. If the percentages had not been consistent over the past three years, further research would need to be done to better understand the reasons for the variability. The company could

have significantly changed its business model or taken other initiatives to significantly increase or decrease its costs in relation to its revenue. In that case, one could listen to the last earnings call or earnings release to get management's views on whether costs of goods sold is expected to increase or decrease.

So, for next year, we want to make an assumption based on the prior year's trends, adjusted based on our research. There are several common methods:

1. Take an average percentage of the last three years.
2. Take a maximum percentage of the last three years (conservative approach).
3. Take a minimum percentage of the last three years (aggressive approach).
4. Take the last year's percentage.
5. Have the percentages steadily increase or decrease year over year.

Note that these are five of the most common methods, but you may look for and identify other trends that may work better based on the individual company's past performance such as percentages decreasing for the next year then staying constant for the next four years.

We always recommend a conservative approach as long as the most conservative approach is within logical reason, so we immediately eliminate option #3. We acknowledge that taking the average over the past three years (option #1) can be a good approach, but we notice that the maximum percentage of the last three years also happens to be the same as the last year's percentage, which satisfies two conditions (options #2 and #4), which is preferred. We do acknowledge that the percentages are slightly increasing year over year, but caution that a further increase without solid evidence could be too much of an increase. So let's take 75.0 percent as the projection for 2013–2017. Note that all of the methods in the list can be considered accurate; our recommended approach is simply a suggestion. Remember, the point is to build out a complete model with broad assumptions, then to go back and tweak such assumptions as you research and get a stronger understanding of the business.

We can hardcode 75% into Cell G15 as our assumption driver. The formula for projecting cost of goods sold in 2013 will be:

2013 COGS = 2013 COGS as a % of Revenue x 2013 Total Revenue

Calculating 2013 COGS (Cell G14)

Excel Key Strokes	Description
type "="	Enters into "formula" mode
select Cell G15	2013 COGS as a % of Revenue
type "*"	Multiplies
select Cell G11	2013 Total Revenue
type "Enter"	End
Formula Result	=G11*G15

This will give us 2013 COGS of $355, 325.3. We can copy Cell G14 and G15 to the right all the way through 2017. We can also calculate future gross profit and the gross profit margin. We have already calculated these formulas in 2010 through 2012, so we can just copy Cells F16 and F17 through 2017 as well. (See Table 1.8.)

Operating Expenses

This same procedure can be repeated for each cost on the income statement: conducting adequate research, analyzing the historical trends, and considering whether each cost is fixed or variable in order to best determine which of the five methods should be used to project the costs forward.

Let's analyze the company's operating, selling, general, and administrative expenses. If we look at the historical expense as a percentage of revenue over the past three years, we notice the costs were 17.8 percent, 17.5 percent, and 17.3 percent for 2010, 2011, and 2012, respectively. We could assume that the costs have been trending down and will continue to do so. However, we recommend further cost reductions may be too aggressive without concrete evidence. Taking the maximum of the past three years is conservative, which we like; however, since there is a downward trend, the maximum is three years ago, so maybe the maximum approach is too conservative. Let's take the last year approach, though we do realize that taking the average over the past three years could also be a good estimate. So, we can take the 2012 17.3 percent as our future assumption for 2013–2017. Hardcode 17.3 in, then we can use the formula below to make our projections.

2013 SG&A = 2013 SG&A as a % of Revenue × 2013 Total Revenue

Calculating 2013 SG&A (Cell G19)

Excel Key Strokes	Description
type "="	Enters into "formula" mode
select Cell G20	2013 SG&A as a % of Revenue
type "*"	Multiplies
select Cell G11	2013 Total Revenue
type "Enter"	End
Formula Result	=G11*G20

This gives us $81, 961.7 in 2013. We can copy Cells G19 and G20 to the right. We can also copy the EBITDA and EBITDA margin % formulas to the right through 2017 as well. We now have a Walmart model complete up through EBITDA. (See Table 1.9.)

TABLE 1.8 Walmart Projected Gross Profit

Consolidated Income Statements (in U.S.$ millions except per share amounts)

	Actuals			Estimates				
Period Ending January 31	2010A	2011A	2012A	2013E	2014E	2015E	2016E	2017E
Revenue								
Net sales	405,132.0	418,952.0	443,854.0					
% Growth		*3.4%*	*5.9%*					
Membership and other income	2,953.0	2,897.0	3,096.0					
% Growth		*−1.9%*	*6.9%*					
Total revenue	**408,085.0**	**421,849.0**	**446,950.0**	**473,767.0**	**502,193.0**	**532,324.6**	**564,264.1**	**598,119.9**
Y/Y revenue growth (%)		*3.4%*	*6.0%*	*6.0%*	*6.0%*	*6.0%*	*6.0%*	*6.0%*
Cost of goods sold								
Cost of goods sold	304,106.0	314,946.0	335,127.0	355,325.3	376,644.8	399,243.5	423,198.1	448,589.9
COGS as a % of revenue	*74.5%*	*74.7%*	*75.0%*	*75.0%*	*75.0%*	*75.0%*	*75.0%*	*75.0%*
Gross profit	**103,979.0**	**106,903.0**	**111,823.0**	**118,441.8**	**125,548.3**	**133,081.2**	**141,066.0**	**149,530.0**
Gross profit margin (%)	*25.5%*	*25.3%*	*25.0%*	*25.0%*	*25.0%*	*25.0%*	*25.0%*	*25.0%*

Depreciation and Amortization

When building a complete financial model it is recommended to leave projected depreciation empty for now. We will build a depreciation schedule that will contain projected depreciation expense to be linked in here. We can, however, copy the EBIT and EBIT margin % formulas, rows 24 and 25, from 2012 to the right through 2017.

Interest Income

When building a complete financial model it is recommended to leave projected interest expense and interest income empty. We will build a debt schedule that will help us better project interest expense and interest income to be linked in here. We can, however, copy the net interest expense, EBT and EBT margin % formulas, rows 30, 31 and 32, from 2012 to the right through 2017.

Taxes

We can take a look at the historical taxes as a percentage of EBT to make our 2013 projections. So, in 2012, Walmart had 32.6 percent in taxes. It is recommended to take a look at the past three years, as we did with the expense line items. Walmart seems to have a steady tax rate at around 32–33 percent of EBIT.

For Walmart, we could take the 32.6 percent 2012 tax rate to be consistent with the methods we used in the expense sections (the last year method). However, after doing a quick word search, there is a note on page 31 of the annual report that clearly states Walmart's tax rates will be 32.5–33.5 percent:

> *We expect the fiscal 2013 annual effective tax rate to be approximately 32.5% to 33.5%. Significant factors that may impact the annual effective tax rate include changes in our assessment of certain tax contingencies, valuation allowances, changes in law, outcomes of administrative audits, the impact of discrete items and the mix of earnings among our U.S. and international operations.*

Let's use 33 percent, as it falls within Walmart's expected range. We can hardcode 33.0% into Cell G34 and copy this to the right through 2017.

TABLE 1.9 Walmart Projected EBITDA

Consolidated Income Statements (in U.S.$ millions except per share amounts)								
	Actuals			Estimates				
Period Ending January 31	2010A	2011A	2012A	2013E	2014E	2015E	2016E	2017E
Revenue								
Net sales	405,132.0	418,952.0	443,854.0					
% Growth		*3.4%*	*5.9%*					
Membership and other income	2,953.0	2,897.0	3,096.0					
% Growth		*–1.9%*	*6.9%*					
Total revenue	**408,085.0**	**421,849.0**	**446,950.0**	**473,767.0**	**502,193.0**	**532,324.6**	**564,264.1**	**598,119.9**
Y/Y revenue growth (%)		*3.4%*	*6.0%*	*6.0%*	*6.0%*	*6.0%*	*6.0%*	*6.0%*
Cost of goods sold								
Cost of goods sold	304,106.0	314,946.0	335,127.0	355,325.3	376,644.8	399,243.5	423,198.1	448,589.9
COGS as a % of revenue	*74.5%*	*74.7%*	*75.0%*	*75.0%*	*75.0%*	*75.0%*	*75.0%*	*75.0%*
Gross profit	**103,979.0**	**106,903.0**	**111,823.0**	**118,441.8**	**125,548.3**	**133,081.2**	**141,066.0**	**149,530.0**
Gross profit margin (%)	*25.5%*	*25.3%*	*25.0%*	*25.0%*	*25.0%*	*25.0%*	*25.0%*	*25.0%*
Operating expenses								
Selling, general, and administrative	72,820.0	73,720.0	77,135.0	81,961.7	86,879.4	92,092.2	97,617.7	103,474.7
SG&A as a % of revenue	*17.8%*	*17.5%*	*17.3%*	*17.3%*	*17.3%*	*17.3%*	*17.3%*	*17.3%*
EBITDA	**31,159.0**	**33,183.0**	**34,688.0**	**36,480.1**	**38,668.9**	**40,989.0**	**43,448.3**	**46,055.2**
EBITDA margin (%)	*7.6%*	*7.9%*	*7.8%*	*7.7%*	*7.7%*	*7.7%*	*7.7%*	*7.7%*

Note that quite often a company will state a reported tax rate that is slightly different from what has been calculated. This difference could be due to adjustments made to pretax net income or other tax benefits realized. In such cases one can either take the historical percentage or the

reported rate. One must make the determination if those adjustments would continue to happen in the future or if the company would pay taxes based on the standard rate. Walmart's annual report states on page 47:

> ***Effective Tax Rate Reconciliation***
>
> *The Company's effective income tax rate is typically lower than the U.S. statutory rate primarily because of benefits from lower-taxed global operations, including the use of global funding structures and certain U.S. tax credits. The Company's non-U.S. income is subject to local Country tax rates that are below the 35% U.S. statutory rate. Certain non-U.S. earnings have been indefinitely reinvested outside the U.S. and are not subject to current U.S. income tax.*

Calculating 2013 Income Tax Expense (Cell G33)

Excel Key Strokes	Description
type "="	Enters into "formula" mode
select Cell G34	2013 Tax Rate %
type "*"	Multiplies
select Cell G31	2013 EBT
type "Enter"	End
Formula Result	=G31*G34

This gives us an income tax expense of $12, 038.4. We can copy cell G33 and G34 to the right through 2017.

Cell F35 ("Net Income (Adjusted)") can be copied through 2017.

You may have noticed that the 2013 taxes appear high compared to 2012. Remember we still do not have depreciation and interest expense in our projections. Once those are linked in, the tax expense will be reduced.

Non-Recurring Events

We would typically not project non-recurring items as, by definition, given that they are non-recurring or extraordinary, they either will not exist in the future or will not be core to our valuation. However, we caution that there may be some additional analyses where a deeper understanding of non-recurring events is necessary.

So we can just make these non-recurring events line items, cells G37 and G38 "0" and we can copy that right through 2017.

Cells F39 and F40—"Total Non-Recurring Events" and "Net Income (after Non-Recurring Events)"—can be copied through 2017.

Non-Controlling Interest

We consider non-controlling interest to be Walmart's "Consolidated net income attributable to non-controlling interest." Non-controlling interest is typically assessed as a percentage of net income. So, as done with the expenses and taxes previously, we can analyze historical percentages to make future projections.

So, in 2012, the portion of net income payable to non-controlling interest was 4.2 percent. Since the non-controlling interest is a payout based on total ownership, it would make more logical sense to use the last year's approach as the best indicator for next year's estimates, unless

further research reveals reason for the level of ownership to increase or decrease. We found no such indication. So let's hardcode 4.2% into cell G43 as our 2013 assumption. The formula for projecting expenses in 2013 will be:

$$\text{2013 Non-Controlling Interest} = \text{2013 Non-Controlling Interest \%} \times \text{2013 Net Income}$$

Calculating 2013 Non-Controlling Interest (Cell G42)

Excel Key Strokes	Description
type "="	Enters into "formula" mode
type "-"	Reverses sign to minus
select Cell G43	2013 Non-Controlling Interest %
type "*"	Multiplies
select Cell G40	2013 Net Income (after Non-Recurring Events)
type "Enter"	End
Formula Result	=-G40*G43

This gives us −$1, 026.5 for 2013 income attributable to non-controlling interests. Note that once we have other expenses such as depreciation and interest expense linked into the income statement, the net income will greatly decrease, and so will non-controlling interests. We can now copy these formulas (Cell G42 and G43) to the right through 2017.

We can also copy the 2012 net income (as reported) formula (Cell F44) through to 2017.

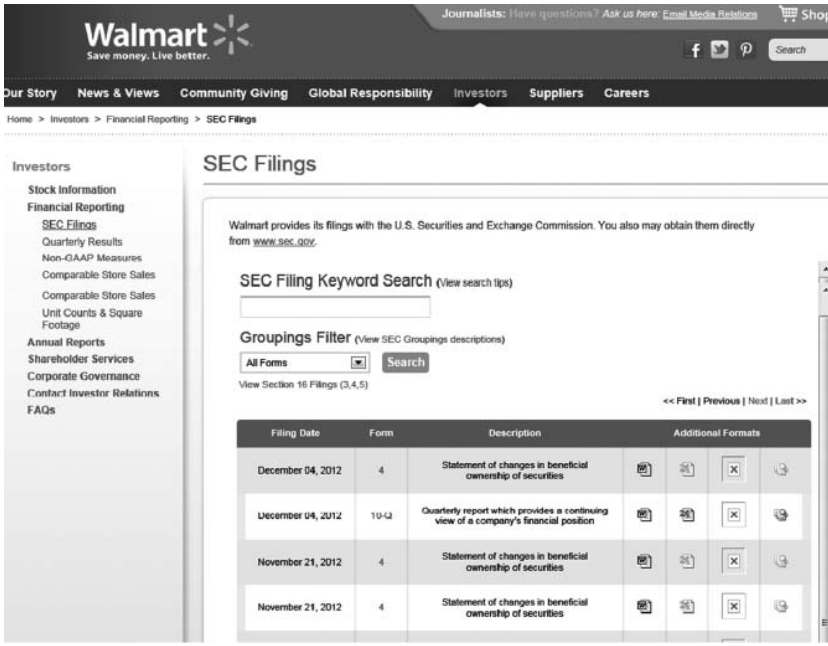
Shares

Basic Shares Outstanding

The best way to project the share count is to first get the most current count of basic shares outstanding. This comes from the first page of the most recent filing (in this case, the Walmart 10-Q report). You can find such additional reports for Walmart by selecting "SEC Filings" in the investor relations section of their web site. (See Figure 1.7.)

Scrolling down reveals Walmart's 10-Q filed on September 6, 2012. The bottom of the second page of this report lists the share count of 3, 361, 444, 307. (See Figure 1.8.) We will use this as the 2013 basic share count in Cell G49. Note that we need to divide this number by 1, 000, 000 in order to be at equivalent units as the prior years.

FIGURE 1.7 Walmart SEC Filings



Diluted Shares Outstanding and the Treasury Method

Diluted shares outstanding is a count of all the shares outstanding in the market plus any stock options are warrants that are exercisable today. What if every stock option holder who holds in-the-money option contracts decides to exercise on those options today? How many shares would be in the market? The diluted share count attempts to estimate that number of shares. There are several resources we can use to obtain the total number of Walmart diluted shares outstanding, but the best way to obtain that diluted share count is to calculate the number ourselves. The best starting point is to pull the most recently reported annual report. Although the Walmart quarterly report is more recent, the quarterly report typically does not contain the option and warrant detail. But, it is always worth taking a look first. Now, in order to get a count of diluted shares, we need to find all notes regarding options and warrants which may be held. Performing a quick word search on “options” reveals a note from page 41 of the Walmart Annual Report. (See Figure 1.9.)

FIGURE 1.8 Walmart 10-Q

UNITED STATES
SECURITIES AND EXCHANGE COMMISSION
Washington, D.C. 20549
FORM 10-Q

(Mark One)

☒ Quarterly Report Pursuant to Section 13 or 15(d) of the Securities Exchange Act of 1934.
For the quarterly period ended July 31, 2012.
or

☐ Transition Report Pursuant to Section 13 or 15(d) of the Securities Exchange Act of 1934.
For the transition period from _____ to _____,
Commission file number 1-6991

Walmart

WAL-MART STORES, INC.
(Exact name of registrant as specified in its charter)

Delaware	71-0415188
(State or other jurisdiction of incorporation or organization)	(I.R.S. Employer Identification No.)
702 S.W. 8th Street Bentonville, Arkansas (Address of principal executive offices)	72716 (Zip Code)

(479) 273-4000
(Registrant's telephone number, including area code)

Not applicable
(Former name, former address and former fiscal year, if changed since last report)

Indicate by check mark whether the registrant (1) has filed all reports required to be filed by Section 13 or 15(d) of the Securities Exchange Act of 1934 during the preceding 12 months (or such shorter periods that the registrant was required to file such reports), and (2) has been subject to such filing requirements for the past 90 days. Yes ☒ No ☐

Indicate by check mark whether the registrant has submitted electronically and posted on its corporate Web site, if any, every Interactive Data File required to be submitted and posted pursuant to Rule 405 of Regulation S-T (§232.405 of this chapter) during the preceding 12 months (or for such shorter period that the registrant was required to submit and post such files). Yes ☒ No ☐

Indicate by check mark whether the registrant is a large accelerated filer, an accelerated filer, a non-accelerated filer or a smaller reporting company. See definitions of "large accelerated filer," "accelerated filer" and "smaller reporting company" in Rule 12b-2 of the Exchange Act. Check One:

Large Accelerated Filer	☒	Accelerated Filer	☐
Non-Accelerated Filer	☐	Smaller Reporting Company	☐

Indicate by a check mark whether the registrant is a shell company (as defined in Rule 12b-2 of the Exchange Act). Yes ☐ No ☒

Applicable Only to Corporate Issuers

Indicate the number of shares outstanding of each of the issuer's classes of common stock, as of the latest practical date.
Common Stock, $0.10 Par Value – 3,361,444,307 shares as of August 31, 2012.

Figure 1.9 represents all outstanding options and their respective exercise price. If the options are "in-the-money" (meaning the options are exercisable) or the current stock price is above the exercise price, then technically these options could be exercised and should be included into our diluted share count. Now, the Walmart stock price was $61.36 on January 31, 2012, which was well above any of the strike prices indicated previously. Notice, however, that only 13, 596 of the shares were exercisable. Why not all? It is most likely because many of the stock options listed previously have certain restrictions, such as timing, preventing one to exercise the stock.

Notice the annual report was filed quite a few months ago. It could be that, by today, some of those restrictions have been lifted, meaning more options are exercisable. It could also be that many of the options listed have already been exercised and are now included in the 3, 361 number we pulled from the quarterly report. (Remember the quarterly count is from a later date.) Or, maybe more options have been granted after this report had been filed. For these reasons it is important to go through other reports more recent than this annual report to try to get an accurate diluted share count. For example, there could be supplementary filings since the annual report filing (8-Ks, for example) detailing the issuance of new options that should be included, or maybe a more recent filing has a more current option table. Unfortunately, we did not find any further information for Walmart giving us exact detail. So we will use the 13, 596, 000 (the table states shares are in thousands, so we multiplied by 1, 000) outstanding options at the $50.49 exercise strike price. This means that if all options are exercised, they would all total a value of $686, 462, 040 ($50.49 $\times$ 13, 596, 000). Now there is a common method called the treasury method, which states that the exercised options are bought back at the current stock price. If we divide the total value of options exercised by the current stock price ($686, 462, 040 / $73.82), we would get 9,

299, 133 shares bought back. (We rounded down, as a partial share does not exist.) In other words, 13, 596, 000 options have been exercised, but 9, 299, 133 bought back. That gives us 4, 296, 867 (13, 596, 000 – 9, 299, 133) new shares outstanding. We add this number to the basic shares outstanding to get 3, 365, 741, 174 (3, 361, 444, 307 + 4, 296, 867). Table 1.10 can be found in row 52. It is not required, but it may be helpful to try and repeat the previous calculation in the table for practice.

FIGURE 1.9 Walmart Option Table

	Restricted Stock and Performance Share Awards		Restricted Stock Rights		Stock Options[1]	
(Shares in thousands)	Shares	Weighted-Average Grant-Date Fair Value Per Share	Shares	Weighted-Average Grant-Date Fair Value Per Share	Shares	Weighted-Average Exercise Price Per Share
Outstanding at February 1, 2011	13,617	$52.33	16,838	$47.71	33,386	$49.35
Granted	5,022	55.03	5,826	47.13	2,042	42.90
Vested/exercised	(3,177)	51.26	(3,733)	47.26	(13,793)	50.22
Forfeited or expired	(2,142)	52.55	(1,310)	47.92	(1,483)	48.01
Outstanding at January 31, 2012	**13,320**	**$53.56**	**17,621**	**$47.76**	**20,152**	**$48.21**
Exercisable at January 31, 2012					**13,596**	**$50.49**

(1) Includes stock option awards granted under the Stock Incentive Plan of 2010, the Colleague Share Ownership Plan 1999 and the ASDA Sharesave Plan 2000.

TABLE 1.10 Walmart Diluted Shares

Diluted Shares	
Share price	$73.82
Number of basic shares outstanding	3,361,444,307
Number of outstanding options (in the money)	13,596,000
Average option strike price	$50.49
Total option proceeds	686,462,040
Treasury stock method shares repurchased	9,299,133
Additional shares outstanding	4,296,867
Total diluted shares outstanding	**3,365,741,174**

In order to get a complete diluted share count, it is crucial to be thorough in making sure you have found all stock options, employee stock options, and warrants that may be exercisable. Often this will be spread across several tables. It is also recommended to see if there are any additional fillings posted announcing the issuance of options or warrants that would not have been captured in the annual or quarterly filings.

We can enter the diluted shares into Cell G50, dividing by 1, 000, 000, and then we can copy to the right. We can also consider continuing to reduce the shares in the future, but let's keep it constant for now until we decide to project further share issuances or buybacks.

Earnings per Share

We can calculate the projected earnings per share using the same formulas as the historical. It is easiest to just copy the formulas over to the right, from Cells F46 and F47 through to 2012.

We now have as much of the income statement as we can complete. (See Table 1.11.)

We will continue on to the cash flow and revisit tweaking the income statement assumptions once the model is complete.

TABLE 1.11 Walmart Projected Income Statement

Consolidated Income Statements (in U.S.$ millions except per share amounts)

	Actuals			Estimates				
Period Ending January 31	**2010A**	**2011A**	**2012A**	**2013E**	**2014E**	**2015E**	**2016E**	**2017E**
Revenue								
Net sales	405,132.0	418,952.0	443,854.0					
% Growth		*3.4%*	*5.9%*					
Membership and other income	2,953.0	2,897.0	3,096.0					
% Growth		*–1.9%*	*6.9%*					
Total revenue	**408,085.0**	**421,849.0**	**446,950.0**	**473,767.0**	**502,193.0**	**532,324.6**	**564,264.1**	**598,119.9**
Y/Y revenue growth (%)		*3.4%*	*6.0%*	*6.0%*	*6.0%*	*6.0%*	*6.0%*	*6.0%*
Cost of goods sold								
Cost of goods sold	304,106.0	314,946.0	335,127.0	355,325.3	376,644.8	399,243.5	423,198.1	448,589.9
COGS as a % of revenue	*74.5%*	*74.7%*	*75.0%*	*75.0%*	*75.0%*	*75.0%*	*75.0%*	*75.0%*
Gross profit	**103,979.0**	**106,903.0**	**111,823.0**	**118,441.8**	**125,548.3**	**133,081.2**	**141,066.0**	**149,530.0**
Gross profit margin (%)	*25.5%*	*25.3%*	*25.0%*	*25.0%*	*25.0%*	*25.0%*	*25.0%*	*25.0%*
Operating expenses								
Selling, general, and administrative	72,820.0	73,720.0	77,135.0	81,961.7	86,879.4	92,092.2	97,617.7	103,474.7
SG&A as a % of revenue	*17.8%*	*17.5%*	*17.3%*	*17.3%*	*17.3%*	*17.3%*	*17.3%*	*17.3%*
EBITDA	**31,159.0**	**33,183.0**	**34,688.0**	**36,480.1**	**38,668.9**	**40,989.0**	**43,448.3**	**46,055.2**
EBITDA margin (%)	*7.6%*	*7.9%*	*7.8%*	*7.7%*	*7.7%*	*7.7%*	*7.7%*	*7.7%*
Depreciation and amortization	7,157.0	7,641.0	8,130.0					
EBIT	**24,002.0**	**25,542.0**	**26,558.0**	**36,480.1**	**38,668.9**	**40,989.0**	**43,448.3**	**46,055.2**
EBIT margin (%)	*5.9%*	*6.1%*	*5.9%*	*7.7%*	*7.7%*	*7.7%*	*7.7%*	*7.7%*
Interest								
Interest expense (debt)	1,787.0	1,928.0	2,034.0					
Interest expense (capital leases)	278.0	277.0	288.0					
Interest income	(181.0)	(201.0)	(162.0)					
Net interest expense	**1,884.0**	**2,004.0**	**2,160.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**
EBT	**22,118.0**	**23,538.0**	**24,398.0**	**36,480.1**	**38,668.9**	**40,989.0**	**43,448.3**	**46,055.2**
EBT margin (%)	*5.4%*	*5.6%*	*5.5%*	*8%*	*8%*	*8%*	*8%*	*8%*
Income tax expense	7,156.0	7,579.0	7,944.0	12,038.4	12,760.7	13,526.4	14,338.0	15,198.2
Tax rate (%)	*32.4%*	*32.2%*	*32.6%*	*33.0%*	*33.0%*	*33.0%*	*33.0%*	*33.0%*
Net income (adjusted)	**14,962.0**	**15,959.0**	**16,454.0**	**24,441.6**	**25,908.1**	**27,462.6**	**29,110.4**	**30,857.0**
Non-recurring events								
Discontinued operations	(79.0)	1,034.0	(67.0)	0.0	0.0	0.0	0.0	0.0
Other	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total non-recurring events	**(79.0)**	**1,034.0**	**(67.0)**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**
Net income (after non-recurring events)	**14,883.0**	**16,993.0**	**16,387.0**	**24,441.6**	**25,908.1**	**27,462.6**	**29,110.4**	**30,857.0**

Consolidated Income Statements (in U.S.$ millions except per share amounts)

	Actuals			Estimates				
Period Ending January 31	**2010A**	**2011A**	**2012A**	**2013E**	**2014E**	**2015E**	**2016E**	**2017E**
Distributions								
Income attributable to non-controlling interests	(513.0)	(604.0)	(688.0)	(1,026.5)	(1,088.1)	(1,153.4)	(1,222.6)	(1,296.0)
Non-controlling interests % of net income	*3.4%*	*3.6%*	*4.2%*	*4.2%*	*4.2%*	*4.2%*	*4.2%*	*4.2%*
Net income (as reported)	**14,370.0**	**16,389.0**	**15,699.0**	**23,415.1**	**24,820.0**	**26,309.2**	**27,887.7**	**29,561.0**
Earnings per share (EPS)								
Basic	3.72	4.48	4.54	6.97	7.38	7.83	8.30	8.79
Diluted	3.71	4.47	4.52	6.96	7.37	7.82	8.29	8.78
Average common shares outstanding								
Basic	3,866	3,656	3,460	3,361	3,361	3,361	3,361	3,361
Diluted	3,877	3,670	3,474	3,366	3,366	3,366	3,366	3,366

CHAPTER 2

The Cash Flow Statement

The cash flow statement is a measure of how much cash a company has produced or spent over a period of time. Although an income statement shows profitability, that profit may or may not result in actual cash gain. This is because many income statement items that are recorded do not necessarily result in an effect on cash. For example, when a sale is made, a customer can pay in cash or on credit. If a company has $10MM in sales, and all customers have paid in cash, then the company has actually generated $10MM in cash. But, if a company has $10MM in sales on credit, then although the revenue has been recorded on the income statement, cash has not been received. The cash flow statement aims to determine how much cash was actually generated, which is broken out into three segments:

- Cash from operating activities
- Cash from investing activities
- Cash from financing activities

The sum of all the cash generated (or spent) from operating activities, from investing activities, and from financing activities results in the total amount of cash spent or received in a given period.

CASH FROM OPERATING ACTIVITIES

Cash from operating activities is a representation of how much cash was generated from net income or profit. We explained earlier how revenue could be received in cash or on credit. As revenue is a source of income, if a portion of that revenue is on credit, we need to make an adjustment to net income based on how much of that revenue is actually cash. Similarly, expenses recorded on the income statement could be cash expenses (they have been paid) or non-cash expenses (they have not been paid). Let's take a billing invoice on an operating expense such as office supplies as an example. Once the invoice is received (a bill we have to pay), we would need to record this on the income statement, even if we had not actually paid that bill yet. Having this expense on our income statement would bring our profitability down. But, when looking at cash available, that bill should not be included as we did not pay it. So, for cash flow from operations, we would add that expense back to the net income, effectively reversing the expense effects.

Example:

Income Statement	
Revenue (collected in cash)	10, 000, 000.0
SG&A (invoice we did not pay)	2, 000, 000.0
Net Income	**8, 000, 000.0**

Cash Flow	
Net Income	**8, 000, 000.0**
Add back SG&A	2, 000, 000.0
Cash from Operations	**10, 000, 000.0**

This should make logical sense. We've collected $10MM in cash from our sales; we received an invoice of $2MM, but we did not pay that invoice. The invoice is expensed properly on the income statement, but we do not want to include that in our cash analysis, as it did not yet affect our cash. So, we add that expense back to the net income. So, the cash from operations rightfully shows we still have $10MM in cash.

Now, let's say of the $10MM in revenue, only $8MM was cash sales, and $2MM was sold on credit. The income statement looks exactly the same, but the cash flow statement is different. If we had only collected $8MM of that $10MM of revenue in cash, then we would need to subtract the $2MM of revenue we did not collect from the net income. So:

Income Statement	
Revenue (only $8MM collected in cash)	10, 000, 000.0
SG&A (invoice we did not pay)	2, 000, 000.0
Net Income	**8, 000, 000.0**

Cash Flow	
Net Income	**8, 000, 000.0**
Subtract revenue we did not collect in cash	(2, 000, 000.0)
Add back SG&A we did not pay	2, 000, 000.0
Cash from Operations	**8, 000, 000.0**

This analysis may seem trivial in the previous example, but it is important to understand the methodology as we apply this to more complex income statements. In general, cash from operating activities is generated by taking net income and removing all the non-cash items.

Or, in its most fundamental form, cash from operations as demonstrated is:

Net Income + Expenses we did not pay – Revenue we did not receive.

But it gets slightly more complex. To understand this completely, let's take a look at all of the components of an income statement and determine which items can be considered cash or non-cash.

Revenue

As we explained previously, if revenue is received on credit, this would be removed from net income. Note the portion of revenue received on credit is called **accounts receivable**.

Cost of Goods Sold

Cost of goods sold (COGS) is the inventory costs related to the item sold. If it costs $50 to make a

chair, for example, and we sell that chair for $100, then for each chair sold, we will record a $50 expense related to the manufacturing cost of the product; this is cost of goods sold. However, we must also reduce our inventory balance by $50 for each chair sold. A reduction in inventory results in a positive cash inflow in the cash from operations section on the cash flow statement. We will illustrate examples of this in the next section.

Operating Expenses

As explained with the $2MM invoice, if an expense received has not been paid, this would be added back to net income. The portion of operating expenses that has not been paid is called **accrued expenses**.

Depreciation

Depreciation is an expense that is never actually paid. As described earlier, it is accounting for the aging of assets. So, like any expense that is not cash, we add it back to net income when calculating cash flow from operations.

Interest

Interest expense is almost always paid in cash. There can be certain complex debt instruments that are an exception, but if a company cannot pay its interest then generally it is considered defaulting on its debt. So, for this reason, we almost always consider interest as cash. Therefore, we would not add it back to net income on the cash flow statement.

Taxes

Taxes can be deferred in some situations, which will be discussed later. The portion of taxes that we expensed, but did not yet pay, is referred to as **deferred taxes**.

The following table summarizes the most common income statement line items and the related accounts if they can be deferred.

Net Income Line Item	Possible Deferrable Items?	Effect in Cash from Operations
Revenue	Yes	Changes in Accounts Receivable
Cost of Goods Sold	Yes	Changes in Inventory Changes in Accounts Payable
Operating Expenses	Yes	Changes in Accrued Expenses Changes in Prepaid

		Expenses
Depreciation	Yes	Depreciation
Interest	No	None (some exceptions)
Taxes	Yes	Deferred Taxes

Keeping with the theme demonstrated above, where we adjust the related revenue and expense items we did not pay or receive in cash from net income to get a measure of cash generated or spent, we can generalize this table toward cash flow from operating activities:

Cash from Operating Activities = Net Income + [Changes in Accounts Receivable + Changes in Inventory + Changes in Accounts Payable + Changes in Accrued Expenses + Changes in Prepaid Expenses] + Depreciation + Deferred Taxes

Although we will discuss this later, there is a definition [Changes in Accounts Receivable + Changes in Inventory + Changes in Accounts Payable + Changes in Accrued Expenses + Changes in Prepaid Expenses] called **changes in working capital,** so:

Cash from Operating Activities = Net Income + Depreciation + Deferred Taxes + Changes in Working Capital

Note the actual "Changes" in each individual line item could be positive or negative. This will be explained in Chapter 4.

To be complete, cash from operating activities should include adjustments based on any and all income statement line items that are non-cash. So, you may see " + Other Non-Cash Items" at the end of the formula to capture those adjustments.

Cash from Operating Activities = Net Income + Depreciation + Deferred Taxes + Other Non-Cash Items + Changes in Working Capital

The important lesson here is to gain the conceptual understanding of how cash from operating activities is derived from the income statement. As we get into more complex case studies and analyses, and for due diligence purposes, you will learn that it is important to understand cash flow as derived from individual income statement line items, rather than memorizing a standard formula. The information in this section is the fundamental beginning of such analyses.

CASH FROM INVESTING ACTIVITIES

Now that we have a measure of cash generated from our operations, there are two other areas from which cash can be generated or spent: investing activities and financing activities. Cash from investing activities is cash generated or spent from buying or selling assets, businesses, or other investments or securities. More specifically, the major categories are:

- Capital expenditures (investments in property, plant, and equipment)
- Buying or selling assets
- Buying, selling, spinning off, or splitting off businesses or portions of business entities
- Investing in or selling marketable and non-marketable securities

CASH FROM FINANCING ACTIVITIES

Cash from financing activities is defined as cash generated or spent from equity or debt. More specifically:

- Raising or buying back equity or preferred securities
- Raising or paying back debt
- Distributions to equity holders (non-controlling interests and dividends)

The sum of the cash from operating activities, cash from investing activities, and cash from financing activities gives us a total measure of how much cash is generated or has been spent over a given period.

Financial Statement Flows Example

Let's take a second, slightly deeper example walking through a complete sale process. We are a new company interested in selling chairs, so we open up a local retail shop. We will sell each chair for $100. It will cost approximately $50 in raw material to create one chair. So the first thing we will do is purchase enough raw material to build 10 chairs ($500). The simple flows are:

Cash Flow	
Net Income	**0.0**
Changes in Inventory (Purchase of Chairs)	(500.0)
Total Changes in Cash	**(500.0)**

Balance Sheet	
Cash	(500.0)
Inventory	500.0

No income has been generated. Cash is negative, as we have spent money to pay for the inventory. An inventory asset has been created on the balance sheet. We will discuss the balance sheet in its entirety later.

Now the cash balance in the balance sheet is $-\$500$. We clearly do not have cash to pay for these raw materials but the vendor is allowing us to defer the money owed to him until we are able to come up with the cash. So, we incur a liability to the vendor called **accounts payable.** The new flows will be:

Cash Flow	
Net Income	**0.0**
Changes in Inventory (Purchase of Chairs)	(500.0)
Changes in Accounts Payable	500.0
Total Changes in Cash	**0.0**

Balance Sheet	
Cash	0.0
Inventory	500.0
Accounts Payable	500.0

At the end of the transaction, the cash balance is zero, we have an asset of $500 in inventory, and we have a liability of $500 in payables due to the vendor.

Now, let's say one chair is sold for $100. Two things happen on the income statement:

1. Revenue is recorded for $100.
2. COGS is incurred of $50.

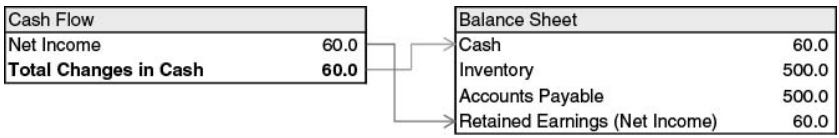
Let's walk through how each of these transactions flows through the income statement, cash flow statement, and balance sheet. It is recommended to focus on one transaction at a time, making sure each completely flows through all three statements before moving on to the next transaction.

If revenue is recorded at $100, then taxes are affected at let's say 40 percent, so $40, and the net income affect is $60:

Income Statement	
Revenue	100.0
Taxes (@ 40%)	(40.0)

Net Income	**60.0**

Next we move to the cash flow statement. Net income begins the cash flow statement, which is the $60 change. Nothing else on the cash flow statement is affected at this point so the total cash change is $60. On the balance sheet, the change in cash will affect our cash balance, which is an asset. And the net income change we will later learn affects our retained earnings.



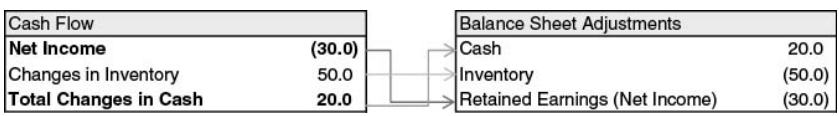
Cash Flow	
Net Income	60.0
Total Changes in Cash	**60.0**

Balance Sheet	
Cash	60.0
Inventory	500.0
Accounts Payable	500.0
Retained Earnings (Net Income)	60.0

Now let's look at the COGS, which incur a cost of $50. Let's look at the financial statement adjustments based on the COGS to get a complete representation of the sale. So, on the income statement, we will incur an expense of $50. As expenses are tax-deductible, taxes will reduce by $20, resulting in a net income reduction of $30:

Income Statement	
COGS	(50.0)
Taxes (@ 40%)	20.0
Net Income	**(30.0)**

Next, we move to the cash flow statement, which starts with net income. COGS is related to inventory. We need to reduce the inventory asset on the balance sheet to reflect the $50 of raw materials that have been sold, which results in a positive cash adjustment. So we will add a "Changes in Inventory" line of $50:

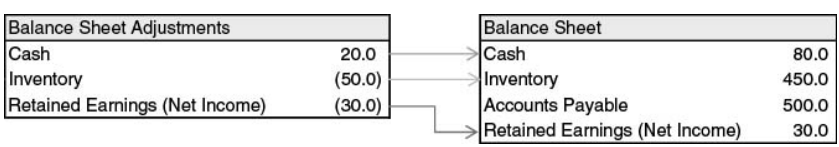


Cash Flow	
Net Income	**(30.0)**
Changes in Inventory	50.0
Total Changes in Cash	**20.0**

Balance Sheet Adjustments	
Cash	20.0
Inventory	(50.0)
Retained Earnings (Net Income)	(30.0)

For the balance sheet, the cash change from before will increase the cash asset balance. Inventory will reduce by $50 to reflect the raw materials sold. And the retained earnings will reduce by the net income change of −$30.

We can now combine the balance sheet adjustment to the total balance sheet.



Balance Sheet Adjustments	
Cash	20.0
Inventory	(50.0)
Retained Earnings (Net Income)	(30.0)

Balance Sheet	
Cash	80.0
Inventory	450.0
Accounts Payable	500.0
Retained Earnings (Net Income)	30.0

We will learn later what it means when we say the balance sheet balances. Here, it does balance, as the sum of the assets (80 + 450 = 530) less the liabilities (500) equals the shareholders' equity (30).

If you have little accounting experience, some of these adjustments may seem a bit confusing. Don't worry about this just yet. As you proceed through the next few chapters, specifically Chapter 5, which will give you a clearer understanding of the balance sheet, I recommend revisiting this example, as you should then have a much better understanding. I also recommend reviewing the additional exercises associated with each chapter, which can be found online.

Notice the previous sale was a cash sale. Let's now say that we have sold another chair, but this time the sale was on credit.

Income Statement:

Income Statement	
Revenue	100.0
Taxes (@ 40%)	(40.0)
Net Income	**60.0**

Notice the income statement looks the same whether the sale was made in cash or on credit. The cash flow statement will be a little different. If the customer pays on credit, then we need to make an adjustment to the cash flow statement, as we did not yet receive that cash. Effectively, we need to subtract the portion of revenue we did not yet receive in cash, and we will create an accounts receivable asset account in the cash flow statement and balance sheet to represent the money owed to us.

Cash Flow	
Net Income	60.0
Changes in Accounts Receivable	(100.0)
Total Changes in Cash	**(40.0)**

Balance Sheet Adjustments	
Cash	(40.0)
Accounts Receivable	100.0
Retained Earnings (Net Income)	60.0

Notice the total cash change is −$40, which reflects the taxes owed on the sale. Because we have recorded the sale, even though we did not receive the cash on that sale yet, we still incur and pay taxes on that sale.

So we need to add these adjustments to the original balance sheet, giving us:

Balance Sheet Adjustments	
Cash	(40.0)
Accounts Receivable	100.0
Retained Earnings (Net Income)	60.0

Balance Sheet	
Cash	40.0
Inventory	450.0
Accounts Receivable	100.0
Accounts Payable	500.0
Retained Earnings (Net Income)	90.0

The cash balance, which was previously $80, has been reduced to $40, an accounts receivable account has been created, and the retained earnings increases from $30 to $90.

We can now make the adjustments to the COGS and inventory.

Income Statement	
COGS	(50.0)
Taxes (@ 40%)	20.0
Net Income	**(30.0)**

Cash Flow	
Net Income	**(30.0)**
Changes in Inventory	50.0
Total Changes in Cash	**20.0**

Balance Sheet Adjustments	
Cash	20.0
Inventory	(50.0)
Retained Earnings (Net Income)	(30.0)

And we can update the balance sheet:

Balance Sheet Adjustments	
Cash	20.0
Inventory	(50.0)
Retained Earnings (Net Income)	(30.0)

Balance Sheet	
Cash	60.0
Inventory	400.0
Accounts Receivable	100.0
Accounts Payable	500.0
Retained Earnings (Net Income)	60.0

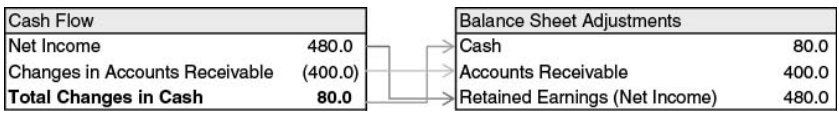
Notice the COGS movements are also the same whether the purchase was made on cash or credit. The balance sheet balances, as the sum of the assets (60 + 400 + 100 = 560) less the

liabilities (500) equals the shareholders' equity (60).

Now let's say we have sold the remaining eight chairs, four of which have been sold on credit. The income statement is:

Income Statement	
Revenue	800.0
Taxes (@ 40 %)	(320.0)
Net Income	**480.0**

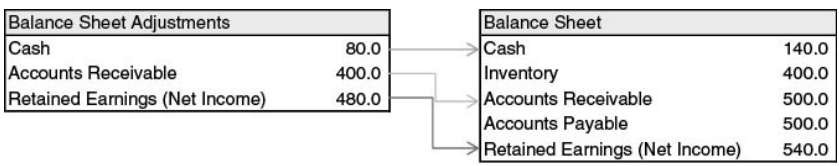
Since four of the chairs were sold on credit, we need remove the $400 from net income on the cash flow statement and adjust for the balance sheet.



Cash Flow	
Net Income	480.0
Changes in Accounts Receivable	(400.0)
Total Changes in Cash	**80.0**

Balance Sheet Adjustments	
Cash	80.0
Accounts Receivable	400.0
Retained Earnings (Net Income)	480.0

Adding these balance sheet adjustments to the total balance sheet gives us:



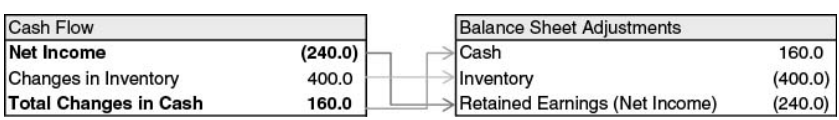
Balance Sheet Adjustments	
Cash	80.0
Accounts Receivable	400.0
Retained Earnings (Net Income)	480.0

Balance Sheet	
Cash	140.0
Inventory	400.0
Accounts Receivable	500.0
Accounts Payable	500.0
Retained Earnings (Net Income)	540.0

We can now make the adjustments for the COGS and inventory associated to the sale, which is $400. Remember: Regardless of whether the sale is made in cash or on credit, we still need to adjust for the COGS and removal of inventory.

Income Statement	
COGS	(400.0)
Taxes (@ 40%)	160.0
Net Income	**(240.0)**

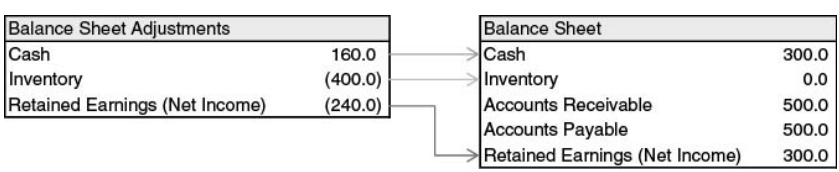
Now we need to remove the $400 from inventory, which results in a positive cash adjustment on the cash flow statement. For the balance sheet, we need to adjust the inventory and cash accordingly.



Cash Flow	
Net Income	**(240.0)**
Changes in Inventory	400.0
Total Changes in Cash	**160.0**

Balance Sheet Adjustments	
Cash	160.0
Inventory	(400.0)
Retained Earnings (Net Income)	(240.0)

Adding these balance sheet adjustments to the total balance sheet gives us:



Balance Sheet Adjustments	
Cash	160.0
Inventory	(400.0)
Retained Earnings (Net Income)	(240.0)

Balance Sheet	
Cash	300.0
Inventory	0.0
Accounts Receivable	500.0
Accounts Payable	500.0
Retained Earnings (Net Income)	300.0

So now we have sold our entire inventory. Notice that we have $500 in payables due, but only $300 in cash. If we had collected on the accounts receivable from our customers, we would

not have this problem. So, let's assume we finally collected on all the accounts receivables and we can pay down the payables.

We collect $500 in accounts receivable:

Cash Flow	
Net Income	**0.0**
Accounts Receivable	500.0
Total Changes in Cash	**500.0**

Balance Sheet Adjustments	
Cash	500.0
Accounts Receivable	(500.0)
Retained Earnings (Net Income)	0.0

The receivable asset goes away and cash is collected. Adding these balance sheet adjustments to the total balance sheet gives us:

Balance Sheet Adjustments	
Cash	500.0
Accounts Receivable	(500.0)
Retained Earnings (Net Income)	0.0

Balance Sheet	
Cash	800.0
Inventory	0.0
Accounts Receivable	0.0
Accounts Payable	500.0
Retained Earnings (Net Income)	300.0

Notice we did not make any changes to the income statement, as we did not create any income generating event here. We simply converted an asset into cash. We now have $800 in cash, enough to pay down our liabilities.

We pay $500 in liabilities:

Cash Flow	
Net Income	**0.0**
Accounts Payable	(500.0)
Total Changes in Cash	**(500.0)**

Balance Sheet Adjustments	
Cash	(500.0)
Accounts Payable	(500.0)
Retained Earnings (Net Income)	0.0

Adding these balance sheet adjustments to the main balance sheet gives us:

Balance Sheet Adjustments	
Cash	(500.0)
Accounts Payable	(500.0)
Retained Earnings (Net Income)	0.0

Balance Sheet	
Cash	300.0
Inventory	0.0
Accounts Receivable	0.0
Accounts Payable	0.0
Retained Earnings (Net Income)	300.0

We have collected all our assets and paid down all our liabilities. Notice that at $100 per chair and a cost of $50 per chair, selling 10 chairs nets us ($1, 000 – $500) $500 pre-tax profit. At a 40 percent tax rate the net profit on that sale is $300 ($500 – $200), exactly the amount of cash and net income we have in the balance sheet.

Don't get discouraged if you did not understand this example completely. As you read on and gain a more fundamental understanding of the underlying concepts involved, the example will become clearer. I recommend revisiting this example a few times as you continue reading.

WALMART'S CASH FLOW STATEMENT

As we did with the income statement, let's lay out the historical numbers for Walmart's cash flow before making projections. On the income statement, we have regrouped a lot of the line items, and extracted some other line items, to get to comparable metrics Wall Street analysts use for analysis such as EBITDA. For the cash flow statement, it is recommended to lay out each item line by line. There may be a couple of line items we will make adjustments to later for more complex reasons, but at this point, keeping with this general rule is best. We will take the time to explain

these line items. Walmart's cash flow statement can be found on page 35 of the Walmart annual report. (See Figure 2.1.)

Cash from Operating Activities

As mentioned earlier:

$$\text{Cash from Operating Activities} = \text{Net Income} + \text{Depreciation} + \text{Deferred Taxes} + \text{Other Non-Cash Items} + \text{Changes in Working Capital}$$

We can certainly identify the top line in Figure 2.1 as net income. The net income used in the cash flow statement is typically net income before dividend payments or non-controlling interest distributions. The reason for this is because the cash flow from financing activities section contains line items for removing such distributions. We need to start with net income before these distributions so as to not double count removing those line items.

Next, there is a line called "Loss (income) from discontinued operations, net of tax." This is an extraordinary, or non-recurring, item. You may see such discontinued or non-recurring items in the cash flow statement. These items are most likely reversing the effects of a non-recurring item that had been recorded in the income statement. Walmart indicated this by drawing a line under the "loss (income) from discontinued operations, net of tax" and labeling the sum of that and the consolidated net income as "income from continuing operations." You may notice that the sum of the net income plus these discontinued operations equals the "income from continuing operations" ($16, 454) in the income statement.

Next are the non-cash adjustments, starting with "depreciation and amortization." After that, Walmart lists "deferred income taxes" and "other operating activities, " all of which fall in line with depreciation, deferred taxes, and other non-cash items from our cash flow from operations formula. Finally, there are four line items under the heading "changes in certain assets and liabilities, net of effects of acquisitions." These are the working capital items that we will discuss later. Again, for the historical section, we can just list the line items exactly as Walmart has done.

FIGURE 2.1 Walmart Cash Flow

(Amounts in millions)	Fiscal Years Ended January 31, 2012	2011	2010
Cash flows from operating activities:			
Consolidated net income	$ 16,387	$ 16,993	$ 14,883
Loss (income) from discontinued operations, net of tax	67	(1,034)	79
Income from continuing operations	16,454	15,959	14,962
Adjustments to reconcile income from continuing operations to net cash provided by operating activities:			
Depreciation and amortization	8,130	7,641	7,157
Deferred income taxes	1,050	651	(504)
Other operating activities	398	1,087	318
Changes in certain assets and liabilities, net of effects of acquisitions:			
Accounts receivable	(796)	(733)	(297)
Inventories	(3,727)	(3,205)	2,213
Accounts payable	2,687	2,676	1,052
Accrued liabilities	59	(433)	1,348
Net cash provided by operating activities	24,255	23,643	26,249
Cash flows from investing activities:			
Payments for property and equipment	(13,510)	(12,699)	(12,184)
Proceeds from disposal of property and equipment	580	489	1,002
Investments and business acquisitions, net of cash acquired	(3,548)	(202)	
Other investing activities	(131)	219	(438)
Net cash used in investing activities	(16,609)	(12,193)	(11,620)
Cash flows from financing activities:			
Net change in short-term borrowings	3,019	503	(1,033)
Proceeds from issuance of long-term debt	5,050	11,396	5,546
Payments of long-term debt	(4,584)	(4,080)	(6,033)
Dividends paid	(5,048)	(4,437)	(4,217)
Purchase of Company stock	(6,298)	(14,776)	(7,276)
Purchase of redeemable noncontrolling interest	—		(436)
Payment of capital lease obligations	(355)	(363)	(346)
Other financing activities	(242)	(271)	(396)
Net cash used in financing activities	(8,458)	(12,028)	(14,191)
Effect of exchange rates on cash and cash equivalents	(33)	66	194
Net increase (decrease) in cash and cash equivalents	(845)	(512)	632
Cash and cash equivalents at beginning of year	7,395	7,907	7,275
Cash and cash equivalents at end of year	$ 6,550	$ 7,395	$ 7,907
Supplemental disclosure of cash flow information:			
Income tax paid	$ 5,899	$ 6,984	$ 7,389
Interest paid	2,346	2,163	2,141

See accompanying notes.

Proceed to the "Cash Flow Statement" tab in the "NYSF – Walmart – Template.xls" model and begin hardcoding out the historical cash flow from operating activities. See Table 2.1 as a guide.

We can also total the net changes in operating working capital, summing the four working capital line items (D13 through D16). The total cash flows from operating activities line is a sum of all of the line items in the cash flows from operating activities section (D7 through D16). The totals should match the totals presented in the Walmart annual report.

Calculating 2010 Net Changes in Operating Working Capital (Cell D17)

Excel Key Strokes	Description
type "=" type "sum(" select Cell D16 type ":"	Enters into "formula" mode Begins "sum" formula Selects the first cell in series Indicates we want to include all cells from the first cell to

	the last cell in series
select Cell D13	Selects the last cell in series
type “)”	Ends “sum” formula
type “Enter”	End
Formula Result	=sum(D16:D13)

TABLE 2.1 Walmart Historical Cash Flow from Operating Activities

Consolidated Statements of Cash Flows (in U.S.$ millions)			
	Actuals		
Period Ending January 31	2010A	2011A	2012A
Cash flows from operating activities			
Net income	14,883.0	16,993.0	16,387.0
Loss (income) from discontinued operations	79.0	(1,034.0)	67.0
Depreciation and amortization	7,157.0	7,641.0	8,130.0
Deferred income taxes	(504.0)	651.0	1,050.0
Other Operating Activities	318.0	1,087.0	398.0
Changes in operating working capital			
Changes in accounts receivable	(297.0)	(733.0)	(796.0)
Changes in inventory	2,213.0	(3,205.0	(3,727.0)
Changes in accounts payable	1,052.0	2,676.0	2,687.0
Changes in accrued liabilities	1,348.0	(433.0)	59.0
Net changes in operating working capital	**4,316.0**	**(1,695.0)**	**(1,777.0)**
Total cash flows from operating activities	**26,249.0**	**23,643.0**	**24,255.0**

Note, you can also simply use the hotkey “alt”+“=” as a quick way to create the sum formula. Please repeat the above process to calculate the sum of Cells D7 through D16. Copy both of these formulas to the right.

Cash from Investing Activities

Here, the most important line item to identify is the capital expenditures (CAPEX). Capital expenditures are important for valuation in the discounted cash flow analysis, as we will learn in Part Two of the book, on Valuation. The CAPEX is represented in the Walmart financials by the “payments for property and equipment” line. The rest of the lines can be laid out one by one. “Proceeds from disposal of property and equipment” is the sale and/or disposal of assets. “Investments and business acquisitions, net of cash acquired” are investments and acquisitions of business that Walmart made in 2012. Page 51 of Walmart’s Annual Report gives more detail on the exact investments made. “Other investing activities” is not clearly defined, but it certainly needs to be included. Quite often you will come across these “other” line items that will not be clearly identified. Later we will discuss how best to project such items.

We can list each line item line by line as Walmart has in the annual report. (See Table 2.2.) We can then total line items in Cells D20 through D23 in the “total cash from investing activities” line, Cell D24.

TABLE 2.2 Walmart Historical Cash Flow from Investing Activities

Consolidated Statements of Cash Flows (in U.S.$ millions)			
	Actuals		
Period Ending January 31	2010A	2011A	2012A
Cash flows from investing activities			
Payments for property and equipment (CAPEX)	(12,184.0)	(12,699.0)	(13,510.0)
Proceeds from disposal of property and equipment	1,002.0	489.0	580.0
Investments and business acquisitions, net of cash acquired	0.0	(202.0)	(3,548.0)
Other investing activities	(438.0)	219.0	(131.0)
Total cash from investing activities	**(11,620.0)**	**(12,193.0)**	**(16,609.0)**

Cash from Financing Activities

Again we want to lay out each item line by line—with one exception. Quite often companies list the payments of debt instruments and the issuance of debt instruments as two separate line items. It will be much simpler if we combine the issuances and payments of like debt instruments. This will make the model flow more smoothly as we link information from the debt schedule into this section. The "net change in short-term borrowings" is short-term debt. The next two lines, "proceeds from issuance of long-term debt" and "payments of long-term debt, " both relate to long-term debt. For this reason I would combine these two line items as one. The next lines, "dividends paid" and "purchase of Company stock, " should also be listed as is. "Purchase of redeemable non-controlling interest" is Walmart buying back a small portion of its non-controlling interest (or minority stake). It's important here to note the difference between buying securities of other companies, which would be an investing activity, and buying back securities of its own company, which would be a financing activity. "Payment of capital lease obligations" is treated as a payment of debt. We will talk more about capital leases when discussing the debt schedule, but for now we will consider this a separate obligation. "Other financing activities" is, like most "other" line items, undefined. It is worth conducting some more research to see if there is additional information on these items. Unfortunately, in this case there is not.

We can total the line items in Cells D26 through D32 in the "total cash from financing activities" line. (See Table 2.3.)

TABLE 2.3 Walmart Historical Cash Flow from Financing Activities

Consolidated Statements of Cash Flows (in U.S.$ millions)			
	Actuals		
Period Ending January 31	2010A	2011A	2012A
Cash flows from financing activities			
Short-term borrowings (repayments)	(1,033.0)	503.0	3,019.0
Long-term borrowings (repayments)	(487.0)	7,316.0	466.0
Dividends paid	(4,217.0)	(4,437.0)	(5,048.0)
Purchase of common stock [treasury stock]	(7,276.0)	(14,776.0)	(6,298.0)
Purchase of redeemable noncontrolling interest	(436.0)	0.0	0.0
Capital lease obligations	(346.0)	(363.0)	(355.0)
Other	(396.0)	(271.0)	(242.0)
Total cash from financing activities	**(14,191.0)**	**(12,028.0)**	**(8,458.0)**

Notice in the Walmart cash flow statement there is a line entitled "effect of exchange rates on cash and cash equivalents, " which is an adjustment made on foreign currency due to the company's international subsidiaries. This is not standard, but it does come up in multinational companies. So, we need to hardcode in this line item after the financing activities section in the cash flow statement, as Walmart has done. Once included, we can calculate the total change in cash by adding the cash from operating activities, cash from investing activities, cash from financing activities, and this effect of exchange rates on cash and cash equivalents line item (or D18 + D24 + D33 + D34). We can copy this total to the right.

We should now have all the cash flow statement line items laid out over the three historical years. (See Table 2.4.)

TABLE 2.4 Walmart Historical Cash Flow

Consolidated Statements of Cash Flows (in U.S.$ millions)

	Actuals		
Period Ending January 31	**2010A**	**2011A**	**2012A**
Cash flows from operating activities			
Net income	14,883.0	16,993.0	16,387.0
Loss (income) from discontinued operations	79.0	(1,034.0)	67.0
Depreciation and amortization	7,157.0	7,641.0	8,130.0
Deferred income taxes	(504.0)	651.0	1,050.0
Other operating activities	318.0	1,087.0	398.0
Changes in operating working capital			
Changes in accounts receivable	(297.0)	(733.0)	(796.0)
Changes in inventory	2,213.0	(3,205.0)	(3,727.0)
Changes in accounts payable	1,052.0	2,676.0	2,687.0
Changes in accrued liabilities	1,348.0	(433.0)	59.0
Net changes in operating working capital	**4,316.0**	**(1,695.0)**	**(1,777.0)**
Total cash flows from operating activities	**26,249.0**	**23,643.0**	**24,255.0**
Cash flows from investing activities			
Payments for property and equipment (CAPEX)	(12,184.0)	(12,699.0)	(13,510.0)
Proceeds from disposal of property and equipment	1,002.0	489.0	580.0

Period Ending January 31	Actuals 2010A	2011A	2012A
Investments and business acquisitions, net of cash acquired	0.0	(202.0)	(3,548.0)
Other investing activities	(438.0)	219.0	(131.0)
Total cash from investing activities	**(11,620.0)**	**(12,193.0)**	**(16,609.0)**
Cash flows from financing activities			
Short-term borrowings (repayments)	(1,033.0)	503.0	3,019.0
Long-term borrowings (repayments)	(487.0)	7,316.0	466.0
Dividends paid	(4,217.0)	(4,437.0)	(5,048.0)
Purchase of common stock [treasury stock]	(7,276.0)	(14,776.0)	(6,298.0)
Purchase of redeemable noncontrolling interest	(436.0)	0.0	0.0
Capital lease obligations	(346.0)	(363.0)	(355.0)
Other	(396.0)	(271.0)	(242.0)
Total cash from financing activities	**(14,191.0)**	**(12,028.0)**	**(8,458.0)**
Effect of Exchange Rate on Cash	194.0	66.0	(33.0)
Total change in cash and cash equivalents	**632.0**	**(512.0)**	**(845.0)**

CASH FLOW STATEMENT'MAKING PROJECTIONS

When making projections, many cash flow statement line items come from the depreciation schedule, working capital schedule, or debt schedule, so it is often recommended to complete the depreciation and working capital schedules first. (The debt schedule should always be done last.) But for purposes of continuity and in keeping the topic of this section to cash flow, let's project the other cash flow line items, then we can move on to the depreciation and working capital schedules and link those appropriate line items back into the cash flow statement when done.

Cash from Operating Activities

Cash from operating activities begins with net income, which we have on the income statement. It is important to ensure we are pulling the correct net income from the income statement. As a general rule, you should always select net income before distributions (dividends, non-controlling interests). We can look to the historical net income and see which net income from the income statement matches the cash flow statement net income as a check. In this case it looks like the $16, 387, consolidated net income, is the net income before non-controlling interest. In our model that is income statement Row 40.

We can link that row into our cash flow, starting by selecting "=" in Cell G7 of our cash flow statement. Once we have typed "="Excel recognizes we will be entering a formula. We can now

select the correct net income on the income statement using the mouse to switch tabs, or "Ctrl"+"Page Up" or "Page Down" to toggle between tabs, keying over to the net income in Cell G40 on the income statement, and selecting "Enter." We can then copy the cash flow statement G7 formula to the right through 2017.

The "loss from discontinued operations" can also be linked from the income statement. This is somewhat trivial, as we have projected this item to be 0 in the future as it is non-recurring, but we should link it in for accuracy. So, we can link income statement Row 39 into our cash flow statement by selecting "=" in G8 of our cash flow statement, toggling over to the income statement using "Ctrl"+"Page Up, " keying over to the non-recurring event in Cell G37, and selecting "Enter." We can then copy the cash flow statement G8 formula to the right through 2017.

Most of the next lines come from either the depreciation schedule or the working capital schedule. "Depreciation and amortization" and "deferred income taxes" come from the depreciation schedule. "Changes in accounts receivable, " "Changes in inventory, " "Changes in accounts payable, " and "Changes in accrued liabilities" all come from the working capital schedule. So we can skip these line items for now and link them in once we complete those schedules.

The Seven Methods of Projections

Next we have "other operating activities." Again, we will come across many such line items that are difficult to define and, moreover, difficult to project. In such instances, we recommend several possible methods to project such line items:

1. Conservative (the minimum of the past three years)
2. Aggressive (the maximum of the past three years)
3. Average (the average of the past three years)
4. Last year (recent performance)
5. Repeat the cycle
6. Year-over-year growth
7. Project out as a percentage of an income statement or balance sheet line item

These are similar to the five methods mentioned in Chapter 1. However, the methods in Chapter 1 were relating to projecting variable operating expenses driven by revenue generation, so we had a better idea of their nature. These more complete seven methods apply to projecting all, including more obscure line items.

1. Conservative. In a cash flow statement, we assume money spent is more conservative than money received. So, taking the minimum amount from the last three years may not be the most accurate, but it is a conservative approach. You can use the "minimum" formula in Excel. For example, "=min(x, y, z)" will give you the lowest amount of x, y, and z.

2. **Aggressive.** This is probably not the most recommended method, but it is a possible method, so we will note it. Assuming more money received is more aggressive, we would take the maximum amount from the last three years. You can use the "maximum" formula in Excel; "=max(x, y, z)" will give you the maximum amount of x, y, and z.

3. Average. This is a popular method, but be warned that quite often the average of the past three years does not always give the best indication of next year's performance, especially if one of the past three years was unusual. We mention this specifically, as we see many analysts using the average method as the safety method. We recommend better to carefully go through all various methods before considering the average method. You can use the "average" formula in Excel; "=average(x, y, z)" will give you the average amount of x, y, and z.

4. Last year. This is based on the underlying assumption that the company's performance last year is most indicative of its future performance. If one does not know the business or the specific line item well, it may not be easy to determine if this is correct method to use. However, a combination of this method and the conservative method is a quite useful indicator. In other

words, if last year's performance also happens to be the most conservative of the last three years, then we have two supporting methodologies that point to the same number. The more support we have, the better.

5. Repeat the cycle. Quite often the last three years' numbers will be quite volatile, swinging from positive to negative or from a very small value to a large value. Although it is often difficult to identify exactly why, some companies can plan more significant cash flow events every second or third year. For example, companies can make larger capital expenditure investments every third year, and smaller investments in the other years. In this case, you may want to continue this trend. The easiest way to do this is to have the projected 2013 year to equal to the first historical year (2010). This way, when copied right, 2014 will equal the 2011 value, 2015 will equal the 2012 value, and so on.

6. Year-over-year growth. Here we can assume some year-over-year growth rate to project the line item going forward. The growth rate can be dependent on what exactly that "other" line item is. If it is rent, for example, we can assume the rent will increase by a standard 5 percent each year. You can also take a look at the historical trends much like what we had done with revenue and apply those trends to the projections.

7. Project out as a percentage of an income statement or balance sheet line item. "Other" line items can sometimes grow dependent on another income statement or balance sheet line item. For example, if "other" is made up of employee salaries, you may want to project this line item based on a percentage of SG&A. One way to determine if this can be an appropriate method is by looking at the historical percentage of SG&A. If the percentages have been fairly consistent over the past three years, then this could be a good indication.

It is also important to add comments in Excel describing the exact method you are using. A good analyst should always add explicit detail and explanations to assumptions to the model for clarity.

It is not easy to determine exactly which method to use. But, it is important to note that quite often these "other" items are insignificant to the overall valuation. To prove this, choose one of the previous methods, and highlight that line item to be revisited once the model and valuation is complete. Then, try to change your assumptions using one of the methods and see if it significantly changes your valuation. If it does, it is worth further research.

So to give you a good idea as to the thought process, let's walk through how to analyze the "other operating activities" line item. One should always first perform research to see if there is more detail on that line item. Unfortunately, in this case, there is no additional detail. So let's step through all of the possibilities:

Conservative: The conservative method, the minimum of three years, would give us 318 from 2010. We like conservative models, so this may be the way to go, but we should first consider all options.

Aggressive: An aggressive approach is not recommended. So let's cross this one out.

Average: The average method could work, but 2011 is triple the 2012 and 2010 value. So the average in this case may not be the best indicator of next year's performance. Let's not cross this one out yet, but rather let's see if there is a better option.

Last year: Last year's value of 398 also happens to be close to the most conservative value. Two methods in favor of the same value is a good reference.

Repeat the cycle: Repeat the cycle is a method to consider as the 2011 value of 1, 087 is significantly higher than the 2009 and 2012 values of approximately300–400. The year 2011 could have been an exception, or this could be a trend. It is helpful to pull up some older annual reports to analyze this further. The 2010 annual report shows 301, 769, and 504 in years 2010, 2009, and 2008, respectively. None of these values hit the

high of 1, 087 in 2011. This is not an easy decision, but we like conservative models, and so we would recommend the conservative approach to always prevail unless we have solid evidence to change. Again, if it gives more comfort, we can highlight this assumption, and once the model is complete try to run the projections both ways to see if that changes our analysis.

Year-over-year growth: Given the volatility of the numbers as discussed, there are clearly no smooth growth trends.

Project out as a percentage of an income statement or balance sheet line item: First, if it is unclear exactly what "other" is referring to, it is difficult to know what other line item we can base this number on. We can suggest it must be an income statement line item, as this line item reads "other operating activities" (operating suggests income), but we still don't know which exact line item. Second, we don't see many line items in the income statement that are as volatile at this line item, so even if we did find a relatable item to calculate a percentage, it would not give us a smooth enough historical trend to base projections on. Therefore, we should also cross this one off.

So, we are left with the average, the conservative, the last year, and the repeat the cycle approaches. Given that the conservative method is close to the last year method, we like two methods that support each other, and we like conservative models, let's go with the conservative approach. We can also highlight this, and once the model is done, try using the average or repeat the cycle approach to see if it makes a major difference in our valuation. This will make the process 100 percent thorough.

Other Operating Activities (Cell G11)

Excel Key Strokes	Description
type "=" type "min(" select Cells D11 through F11, holding down "Shift" while tapping the Left Arrow Key type ")" Type "Enter" Formula result	Enters into "formula" mode Starts minimum formula 2010, 2011, and 2012 Other Operating Activities Ends minimum formula End =MIN(D11:F11)

TABLE 2.5 Walmart Projected Other Operating Activities

	2010A	2011A	2012A	2013E	2014E	2015E	2016E	2017E
Other Operating Activities	318.0	1,087.0	398.0	318.0	318.0	318.0	318.0	318.0
Formula	318.0	1,087.0	398.0	=MIN(D11:F11)	=G11	=H11	=I11	=J11

This gives us 318, the minimum amount. For 2014, take care not to copy the same formula to the right. Doing so will shift all the cell references and change our answer. Assuming we want to

keep the projected 2013 number constant, we simply want to have our 2014 projection equal to our 2013 projection. So, type "=" in Cell H11, tap the left arrow key one to select Cell G11, and hit "Enter." This is the formula, Cell H11 that we can copy over to the right. (See Table 2.5.)

Since we don't have the other line items until we complete the depreciation and working capital schedules, we can now copy the net changes in working capital, and the total cash from operating activities formulas (Cells F17 and F18) from 2012 over to 2017. (See Table 2.6.)

Modeling Tip

We strongly recommend saving deeper research until the model is completely linked through. I have often seen analysts one or two days after receiving a model assignment still researching the company to best hone in on revenue and cost assumptions. It is, as a result, not excusable to mention to your superior that you are still conducting research, when asked to see the model and there is no model to review. It is preferable to first have a completely linked model with even the most general assumptions, and then later go back to tweak and hone assumptions.

Cash from Investing Activities

Capital expenditures (CAPEX) is one of the few line items that management often gives guidance on. By performing a word search on "capital expenditures" in the Walmart 2012 annual report, we reveal the following note:

> *We expect capital expenditures for property and equipment in fiscal 2013, excluding any business acquisitions, to range between $13.0 billion and $14.0 billion.*

TABLE 2.6 Walmart Projected Cash Flow from Operating Activities

Consolidated Statements of Cash Flows (in U.S.$ millions)								
	Actuals			Estimates				
Period Ending January 31	2010A	2011A	2012A	2013E	2014E	2015E	2016E	2017E
Cash flows from operating activities								
Net income	14,883.0	16,993.0	16,387.0	24,441.6	25,908.1	27,462.6	29,110.4	30,857.0
Loss (income) from discontinued operations	79.0	(1,034.0)	67.0	0.0	0.0	0.0	0.0	0.0
Depreciation and amortization	7,157.0	7,641.0	8,130.0					
Deferred income taxes	(504.0)	651.0	1,050.0					
Other operating activities	318.0	1,087.0	398.0	318.0	318.0	318.0	318.0	318.0
Changes in operating working capital								
Changes in accounts receivable	(297.0)	(733.0)	(796.0)					
Changes in inventory	2,213.0	(3,205.0)	(3,727.0)					
Changes in accounts payable	1,052.0	2,676.0	2,687.0					
Changes in accrued liabilities	1,348.0	(433.0)	59.0					
Net changes in operating working capital	**4,316.0**	**(1,695.0)**	**(1,777.0)**	0.0	0.0	0.0	0.0	0.0
Total cash flows from operating activities	**26,249.0**	**23,643.0**	**24,255.0**	**24,759.6**	**26,226.1**	**27,780.6**	**29,428.4**	**31,175.0**

The company did not provide an exact number, but we can join this guidance with one of the seven methods mentioned earlier. For CAPEX, let's take a look at the last method, basing it as a percentage of sales. Although CAPEX is often considered as a percentage of sales, this can be considered too aggressive. Quite often percent of sales is used as a default, but this may not be the most accurate representation. Some companies can spend, for example, 10 percent of sales on CAPEX as a policy of reinvestment in their business, but if you're a manufacturer with a lot of spare capacity coming out of a downturn it wouldn't make sense to have massive CAPEX increases as a result of 20 percent annual revenue growth.

So, let's look at the historical CAPEX as a percentage of sales, and see if there is a solid trend. This would be a good indication to use the same method in the future.

We should add a line underneath the CAPEX line. In order to add a row, first we need to highlight a row by selecting any cell in row 21, holding down "Shift" and "Space bar", and letting go. Then hold down "Ctrl"+"Shift"+"+." Or, after selecting a cell in row 21, you can right-click on the mouse, select "Insert…" from the menu that pops up, then select "Entire row."

We can label this new row "CAPEX % of Revenue." Now let's take a look at the historical trend.

2010 CAPEX % of Revenue (Cell D21)

Excel Key Strokes	Description
type "="	Enters into "'formula" mode
type "-"	We want CAPEX to be positive so we can calculate a positive percentage
Select Cell D20	2010 CAPEX
type = "/"	Divides
Select **income statement** Cell D11	2010 Revenue
Type "Enter"	End
Formula result	=-D20/'Income Statement'!

Note: You may need to adjust the formatting to view the contents of cell D21 as a percentage. "Ctrl"+"1" is a quick way to open up the "Format Cells" box. Here you can select "Percentage" as an option.

If we copy this formula to the right two times, we notice the CAPEX has consistently been 3.0 percent of revenue from 2010 to 2012. (See Table 2.7.)

TABLE 2.7 Walmart Historical CAPEX

Consolidated Statements of Cash Flows (in U.S.$ millions)			
	Actuals		
Period Ending January 31	2010A	2011A	2012A
Cash flows from investing activities			
Payments for property and equipment (CAPEX)	(12,184.0)	(12,699.0)	(13,510.0)
Capex % of revenue	3.0%	3.0%	3.0%

So, it looks we can use 3.0% going forward. We can hardcode "3.0%" in Cell G21 and project 2013 CAPEX.

Note when hardcoding 3.0%: Make sure you have formatted the cells into percentages. If your cells have not been formatted as a percent and you type in "3.0%, " Excel will convert that percentage into the decimal 0.03, which may appear as 0.0 in your Excel if it is rounding to the one decimal place.

2013 CAPEX (Cell G20)

Excel Key Strokes	Description
type "="	Enters into "formula" mode
type "-"	CAPEX should be negative; a cash outflow
Select Cell G21	2013 CAPEX % of Revenue
type = "*"	Multiplies
Select **income statement** Cell G11	2013 Revenue
Type "Enter"	End
Formula Result	=-G21*'Income Statement'! G11

This gives us −$14, 213.0 in 2013. The Walmart note suggested a range of $13, 000–$14, 000 for 2013, and we are slightly out of that range. We could consider lowering our percentage assumption, but we recommend that it is better to be slightly conservative here, especially if the historical percentages indicate such a consistent trend. We can now copy cells G20 and G21 to the right through 2017. Notice that K20 is −$17, 943.6. This does seem like a big jump from 2013's value. However, we have yet to scale down our revenue, which we will do toward the end of the analysis. (See Table 2.8.)

TABLE 2.8 Walmart Projected CAPEX

Consolidated Statements of Cash Flows (in U.S.$ millions)								
	Actuals			Estimates				
Period Ending January 31	2010A	2011A	2012A	2013E	2014E	2015E	2016E	2017E
Cash flows from investing activities								
Payments for property and equipment (CAPEX)	(12,184.0)	(12,699.0)	(13,510.0)	(14,213.0)	(15,065.8)	(15,969.7)	(16,927.9)	(17,943.6)
Capex % of revenue	3.0%	3.0%	3.0%	3.0%	3.0%	3.0%	3.0%	3.0%

Proceeds from Disposal of Property and Equipment

This is related to a company selling off or disposing portions of their property or equipment. It is unclear exactly what they are doing, but it is most likely selling old equipment they are planning on replacing. Note that this can also be related to the sale of equipment from portions of businesses they have closed or are planning on closing. This is clearly an unknown and is difficult to project without further company guidance. We continue to recommend being conservative here. However, given the "non-recurring" nature of disposals, we can argue taking a minimum of the past three years is not conservative enough. Being more conservative could mean there are no more disposals. If we want to be most conservative, we can assume this will be zero in the future. Note that it also may be helpful to take a look at a quarterly report if one has been produced beyond the annual report. It may have more updated information. We will go with the most conservative approach, hardcoding "0" in for each projected year.

Items Based on Cash Available

Some line items on the cash flow statement are driven by how much cash a business has available. Investments such as purchasing securities, for example, are not necessary to drive the operations of the business. But if the company has a surplus of cash, making such investments could be wise. Another example is a share buyback. A company can choose to buy back its shares as a way to increase value in its stock. However, if a company does not have a surplus of cash, buying back shares may not be the best or most feasible business decision. These items are almost impossible to predict. One recommendation is to highlight these line items red, project them zero for now, and revisit them once the model is complete and once we have a better idea of what the company's cash position could be. It is also important to do further research and listen to the company's latest conference call to see if cash management or future cash initiatives are discussed.

Investments and business acquisitions, net of cash acquired.

Investments and business acquisitions, net of cash acquired in the cash from investing activities of Walmart's cash flow statement is a good example of an "item based on cash available." This is very difficult to predict. Most companies have investing activities that will be quite volatile such as this one. What's most difficult about such investing activities is that companies may only make large investments if they have the cash to do so. Walmart, for example, made a large investment of $3, 548 in 2012. Further research indicates that this was for the acquisition of Netto and Massmart. From page 9 of the 2012 annual report:

> *Additionally, in fiscal 2012, we made additional investments of $3.5 billion, net of cash acquired, for the acquisitions of Netto and Massmart. . . .*

So, taking the conservative or the last year approach would give us this $3, 548, indicating that Walmart will be making such acquisitions in the future. We cannot assume Walmart would have the need or financial capacity to make such acquisitions year after year. This is an example of where one always needs to step back and research such line items in addition to selecting one of the earlier projection methods.

Let's leave this one zero for now. Note it is important to have a good high-level understanding

of what the analysis is being created for to help judge where time should be spent conducting deeper research. We will learn later CAPEX is the line item within the cash flow from investing activities section that has the greatest impact in our valuation. This may vary from analysis to analysis, but it does give in this case some comfort that although this line item is very difficult to predict, it should not have a huge impact on our overall valuation analysis.

Other Investing Activities.

This line item is also unclear. It is quite volatile. We do like the conservative method, but having −$438 going forward year after year may be too conservative when compared with the $219 and the −$131 in the next two years. It is important to note that this does not amount to a very significant portion of the company's overall cash flow. Let's use the repeat the cycle method given the volatility, although the average or conservative method could work here as well. We could highlight this and once the model is done rerun the under various methods, but as discussed previously it is CAPEX in this section that has the greatest effect on valuation, so it may not be necessary. So we can link Cell G24 to D24 (in Cell G24, we will have "=D24") and copy Cell G24 over to the right through 2017. (See Table 2.9.)

Note here we need to redo our total cash from investing activities formula, because we had added the line "CAPEX % of revenue, " which we do not want included in our total.

Total cash from investing activities (Cell D25)

Excel Key Strokes	Description
type "="	Enters into "formula" mode
select Cell D20	Selects the first row
type "+sum("	Adds the "Sum" formula
highlight Cell D22 through D24	Adds the last four rows in the section
type ")"	Ends the "Sum" formula
type "Enter"	End
Formula Result	=D20+SUM(D22:D24)

We can now copy this formula through 2017. (See Table 2.9.)

TABLE 2.9 Walmart Projected Cash Flow from Investing Activities

Consolidated Statements of Cash Flows (in U.S.$ millions)								
	Actuals			Estimates				
Period Ending January 31	2010A	2011A	2012A	2013E	2014E	2015E	2016E	2017E
Cash flows from investing activities								
Payments for property and equipment (CAPEX)	(12,184.0)	(12,699.0)	(13,510.0)	(14,213.0)	(15,065.8)	(15,969.7)	(16,927.9)	(17,943.6)
Capex % of revenue	3.0%	3.0%	3.0%	3.0%	3.0%	3.0%	3.0%	3.0%
Proceeds from disposal of property and equipment	1,002.0	489.0	580.0	0.0	0.0	0.0	0.0	0.0
Investments and business acquisitions, net of cash acquired	0.0	(202.0)	(3,548.0)	0.0	0.0	0.0	0.0	0.0
Other investing activities	(438.0)	219.0	(131.0)	(438.0)	219.0	(131.0)	(438.0)	219.0
Total cash from investing activities	**(11,620.0)**	**(12,193.0)**	**(16,609.0)**	**(14,651.0)**	**(14,846.8)**	**(16,100.7)**	**(17,365.9)**	**(17,724.6)**

Cash Flow from Financing Activities

Remember to think of the financing activities in three major sections:

1. Raising or buying back equity
2. Raising or paying down debt
3. Distributions

All items relating to debts, we will leave empty for now. These projected line items will ultimately come from the debt schedule, which will be discussed later. So the short-term debt, the long-term debt, and the capital lease obligations will all be empty.

Dividends

The formula for dividends is:

$$\text{Dividends} = \text{Shares Outstanding} \times \$/\text{Share}$$

As dividends are driven by shares outstanding, we can use the "project out as a percentage of an income statement or balance sheet line item" method. But, instead of a percentage it is better to project dividends based on $/share.

The $/share a company will pay is typically disclosed in the annual report. If it is not disclosed, you can divide the historical dividends paid by the historical number of shares to get an implied $/share, which can be applied to the future. However, performing a word search will reveal the following from page 53 of the annual report:

> *On March 1, 2012, the Board of Directors approved an increase in the annual dividend for fiscal 2013 to $1.59 per share, an increase of approximately 9% over the dividends paid in fiscal 2012. Dividends per share were $1.46 and $1.21 in fiscal 2012 and 2011, respectively.*

We should add a line underneath the dividends line for our $/share assumption.

In order to add a row, select any cell in row 30, holding down "Shift" and "Space bar", and letting go.. Then hold down "Ctrl"+"Shift"+"+." Or, after selecting a cell in row 30, you can right-click on the mouse, select "Insert…" from the menu that pops up, then select "Entire row."

We can label this row “dividends paid ($/share).” Based on the annual report note, the company will pay $1.59 per share in dividends. So we can type 1.59 into Cell G30 for our 2013 assumption. We can multiply this by the most recent count of shares outstanding calculated in the 2013 income statement to get the projected dividends paid.

Dividends (Cell G29)

Excel Key Strokes	Description
type “=”	Enters into “formula” mode
type “-”	Dividends paid out should be negative
Select Cell G30	Dividends ($/share) assumption driver
type “*”	Multiplies
Select Income Statement Cell G49	2013 Basic Shares
type “Enter”	End
Formula result	=-G30*‘Income Statement’! G49

This will give us −$5, 344.7 for 2013 dividends paid. For 2014 we can keep the assumption flat, continuing to pay out $1.59 per share, or we may want to assume some minimal future growth in the $/share future payout. It is noted that there is a 9 percent increase in 2012 from the 2011 payout of $1.46/share and a 20 percent increase in 2011 from the 2010 $1.21/per share. Let’s keep the $1.59 constant for now. We can always adjust once we find concrete evidence from management that an increase will in fact happen. So, we can simply copy the 2013 assumption and dividend formula (Cells G29 and G30) to the right.

Note that dividends can also be considered an “item based on cash available (see Items Based on Cash Available, earlier), where dividends can be reduced if a company is projecting a cash shortfall. However, unlike the “investments and business acquisitions, net of cash acquired” line item, if a company declares dividends it will more likely than not continue to pay dividends the next year. So we will continue to project them. Remember that the “investments and business acquisitions, net of cash acquired” line item contained a very large acquisition, which is most likely not a yearly business activity. So, as with other “items based on cash available, ” it is important to conduct further research, listen to conference calls, and maybe refer to a more recent quarterly filing for more information on the company’s dividend plan.

It is also important to note that dividends are commonly reported on a company’s income statement in the “distribution” section as we had defined in Chapter 1 and removed from net income. Walmart does not report total dividends in that section, but does report “dividends declared per share” at the bottom of the income statement. We may want to consider adding a line for the total dividends. However, given the fact that the net income that we utilize for the cash flow statement needs to be net income before dividends are removed anyway, there is not so much of a need to adjust the income statement.

Purchase of Common Stock

Purchase of common stock is a share buyback. When a company buys back its own shares, cash is spent and the number of outstanding shares in the market reduces. A share buyback can be considered an “item based on cash available, ” as a company will most likely buy back shares only if it has excess cash do to so; that is, it is not crucial to the core operations of the business. Note that one of the major reasons a company will buy back shares is to try to increase the value of its

stock price. If a company issues stock in the market, there will be more shares in the market, so based on the laws of supply and demand, if there are more shares in the market, the price will tend to go down. A share buyback has the opposite effect. If there are fewer shares in the market, the stock price will tend to increase. It is important to mention this doesn't always end up holding true based on other external market forces.

In Walmart's case, it appears the company has been buying back shares every year. So we should spend some more time choosing a proper method to project share buybacks.

Although we almost always favor the conservative method, utilizing the conservative method here would give us the 2011 $14, 776 value, which is double the 2012 and 2010 values of $6, 298 and $7, 276, respectively. Looking at historical financials before 2010 leads us to believe the $14, 776 is unusually high. The aggressive method is not commonly recommended in a conservative model. The average method could work and is better in this case than the conservative, but the 2011 value will still skew the results. We tend to recommend the "last year" method; however, this is very difficult to predict as it is an item based on cash available. "Repeat the cycle" will probably not be the best method, as this does not look cyclical, especially after looking at the years before 2010. The volatility proves no smooth growth, so the "year-over-year growth" method will not work. And, finally, the "project out as a percentage of an income statement or balance sheet line item" method may not fit as well as the others, as we do not see an underlying operating item or asset that can drive this value.

We should also note that in the income statement we had projected shares to lower from 3, 460 in 2012 to 3, 361 in 2013. So we are assuming the company has bought back 99 (3, 460 – 3, 361) shares. We can assume that the company will buy back those 99 shares at the current share price of $73.82, which amounts to a 2013 share buyback of $7, 308.18MM. This number seems very reasonable when comparing with the $6, 298MM from 2012. Note that we could have also assumed the company would buy these bulk shares at a discount or made an assumption that the stock price in the future will change, but we will keep this relatively simple for now.

Let's use 7, 308.18 for 2013, hardcoding it into Cell G31 as a negative value, and let's also carry that same value forward through 2017. As this is an item based on cash available, we know if our projected model shows a potential future cash concern for Walmart, we can lower this future assumption, thus implying Walmart can cut back on its future buyback plan. (See Table 2.10.)

TABLE 2.10 Walmart Projected Purchase of Common Stock

Consolidated Statements of Cash Flows (in U.S.$ millions)								
	Actuals			Estimates				
Period Ending January 31	2010A	2011A	2012A	2013E	2014E	2015E	2016E	2017E
Cash flows from financing activities								
Short-term borrowings (repayments)	(1,033.0)	503.0	3,019.0					
Long-term borrowings (repayments)	(487.0)	7,316.0	466.0					
Dividends paid	(4,217.0)	(4,437.0)	(5,048.0)	(5,344.7)	(5,344.7)	(5,344.7)	(5,344.7)	(5,344.7)
Dividends paid ($/share)				*1.59*	*1.59*	*1.59*	*1.59*	*1.59*
Purchase of common stock [treasury stock]	(7,276.0)	(14,776.0)	(6,298.0)	(7,308.2)	(7,308.2)	(7,308.2)	(7,308.2)	(7,308.2)
Purchase of redeemable noncontrolling interest	(436.0)	0.0	0.0					
Capital lease obligations	(346.0)	(363.0)	(355.0)					
Other	(396.0)	(271.0)	(242.0)					
Total cash from financing activities	**(14,191.0)**	**(12,028.0)**	**(8,458.0)**					

Further, if we are continuing to project share buybacks beyond 2013 of $7, 308.18, we need to assume the share count will continue to decrease at 99 shares. We can use an empty row at the bottom of the income statement (Row 51) and label it "shares repurchased." We can hardcode "99" in Cell H51 and copy that right through K51. We can then have the 2014 Basic and Diluted shares reduce by that 99. So we can have Cell H49 read "=G49-H51, " and we can have H50 read "=G50-H51." We can copy both of these formulas to the right through 2017. Again, we could have made more specific assumptions, further adjusting the share price in the future, or we could

have added more detail on the diluted share adjustments. We could have also created formulas backing into the 99 and $7, 308.18 numbers instead of hardcoding them. We have chosen not to make further adjustments for this case. (See Table 2.11.)

Purchase of Redeemable Non-Controlling Interest

Purchase of redeemable non-controlling interest has not occurred for the past two years. So we will assume this is non-recurring and is zero.

Payment of Capital Lease Obligations

Payment of capital lease obligations will be left empty and discussed as part of the debt schedule.

Other Financing Activities

Other financing activities are also not very explicit. Performing a word search does not reveal any further detail, so we have to resort to the seven methods. We could take the conservative method as it is the "safest." However, we notice an upward trend in the numbers from 2010 to 2012. We could continue that trend by using a growth rate, but it would be better if we had a more concrete idea of what the line item actually is. The last year method may be the best option here; however it's a difficult call. The average method also can work. All of the above methods give quite similar numbers and they don't seem to have a very large impact on the overall cash flow. Let's use the "last year" method. We can always go back and change our assumptions when the model is done. So for now we can have G34 read " = F34, " and we can copy this to the right.

TABLE 2.11 Walmart Projected Shares Repurchased

Consolidated Income Statements
(in U.S.$ millions except per share amounts)

	Actuals				Estimates			
Period Ending January 31	2010A	2011A	2012A	2013E	2014E	2015E	2016E	2017E
Average common shares outstanding								
Basic	3,866	3,656	3,460	3,361	3,262	3,163	3,064	2,965
Diluted	3,877	3,670	3,474	3,366	3,267	3,168	3,069	2,970
Shares repurchased					99	99	99	99

Since we created a new Row 30, "dividends paid ($/share), " we need to redo our total cash flow from financing activities. Dividends paid ($/share) is an assumption driver, so it should not be totaled into our overall cash flow. So we need to redo our total formulas to sum Row 27 through Row 29 and Row 31 through Row 34.

Total cash from financing activities (Cell D35)

Excel Key Strokes	Description
type " = "	Enters into "formula" mode
type "sum("	Creates "Sum" formula

highlight Cell D27 through D29	Adds the first three rows in the section
type “)”	Ends the “Sum” formula
type “+sum(”	Adds the next “Sum” formula
highlight Cell D31 through D34	Adds the last four rows in the section
type “)”	Ends the “Sum” formula
type “Enter”	End
Formula Result	=SUM(D27:D29)+SUM(D31:D34)

We can now copy Cell D35 through 2017. (See Table 2.12.)

Effect of Exchange Rate on Cash

This line item is minimal and volatile. Let’s use the repeat the cycle method given the volatility, although the average or “conservative” methods could work here as well. The values are very small and will have a minimal effect on our cash flow. Let’s link Cell G36 to D36 (in Cell G36, we will have “=D36”) and copy Cell G36 over to the right through 2017.

Our cash flow projections are complete and we can now copy the total cash and cash equivalents formula from F37 over to the right through 2017. (See Table 2.13.)

There is a line at the bottom of the cash flow statement titled “cash flow before debt paydown.” This is utilized for the debt schedule. We will leave it empty for now and discuss that line item in the debt schedule section.

TABLE 2.12 Walmart Projected Cash from Financing Activities

Consolidated Statements of Cash Flows (in U.S.$ millions)	Actuals			Estimates				
Period Ending January 31	2010A	2011A	2012A	2013E	2014E	2015E	2016E	2017E
Cash flows from financing activities								
Short-term borrowings (repayments)	(1,033.0)	503.0	3,019.0					
Long-term borrowings (repayments)	(487.0)	7,316.0	466.0					
Dividends paid	(4,217.0)	(4,437.0)	(5,048.0)	(5,344.7)	(5,187.3)	(5,029.9)	(4,872.5)	(4,715.1)
Dividends paid ($/share)				*1.59*	*1.59*	*1.59*	*1.59*	*1.59*
Purchase of common stock [treasury stock]	(7,276.0)	(14,776.0)	(6,298.0)	(7,308.2)	(7,308.2)	(7,308.2)	(7,308.2)	(7,308.2)
Purchase of redeemable noncontrolling interest	(436.0)	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Capital lease obligations	(346.0)	(363.0)	(355.0)					
Other	(396.0)	(271.0)	(242.0)	(242.0)	(242.0)	(242.0)	(242.0)	(242.0)
Total cash from financing activities	**(14,191.0)**	**(12,028.0)**	**(8,458.0)**	**(12,894.9)**	**(12,737.5)**	**(12,580.1)**	**(12,422.6)**	**(12,265.2)**

TABLE 2.13 Walmart Projected Cash Flow Statement

Consolidated Statements of Cash Flows (in U.S.$ millions)

Period Ending January 31	Actuals			Estimates				
	2010A	2011A	2012A	2013E	2014E	2015E	2016E	2017E
Cash flows from operating activities								
Net income	14,883.0	16,993.0	16,387.0	24,441.6	25,908.1	27,462.6	29,110.4	30,857.0
Loss (income) from discontinued operations	79.0	(1,034.0)	67.0	0.0	0.0	0.0	0.0	0.0
Depreciation and amortization	7,157.0	7,641.0	8,130.0					
Deferred income taxes	(504.0)	651.0	1,050.0					
Other Operating Activities	318.0	1,087.0	398.0	318.0	318.0	318.0	318.0	318.0
Changes in operating working capital								
Changes in accounts receivable	(297.0)	(733.0)	(796.0)					
Changes in inventory	2,213.0	(3,205.0)	(3,727.0)					
Changes in accounts payable	1,052.0	2,676.0	2,687.0					
Changes in accrued liabilities	1,348.0	(433.0)	59.0					
Net changes in operating working capital	**4,316.0**	**(1,695.0)**	**(1,777.0)**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**
Total cash flows from operating activities	**26,249.0**	**23,643.0**	**24,255.0**	**24,759.6**	**26,226.1**	**27,780.6**	**29,428.4**	**31,175.0**
Cash flows from investing activities								
Payments for property and equipment (CAPEX)	(12,184.0)	(12,699.0)	(13,510.0)	(14,213.0)	(15,065.8)	(15,969.7)	(16,927.9)	(17,943.6)
Capex % of revenue	3.0%	3.0%	3.0%	3.0%	3.0%	3.0%	3.0%	3.0%
Proceeds from disposal of property and equipment	1,002.0	489.0	580.0	0.0	0.0	0.0	0.0	0.0
Investments and business acquisitions, net of cash acquired	0.0	(202.0)	(3,548.0)	0.0	0.0	0.0	0.0	0.0
Other investing activities	(438.0)	219.0	(131.0)	(438.0)	219.0	(131.0)	(438.0)	219.0
Total cash from investing activities	**(11,620.0)**	**(12,193.0)**	**(16,609.0)**	**(14,651.0)**	**(14,846.8)**	**(16,100.7)**	**(17,365.9)**	**(17,724.6)**
Cash flows from financing activities								
Short-term borrowings (repayments)	(1,033.0)	503.0	3,019.0					
Long-term borrowings (repayments)	(487.0)	7,316.0	466.0					

Period Ending January 31	Actuals			Estimates				
	2010A	2011A	2012A	2013E	2014E	2015E	2016E	2017E
Dividends paid	(4,217.0)	(4,437.0)	(5,048.0)	(5,344.7)	(5,187.3)	(5,029.9)	(4,872.5)	(4,715.1)
Dividends paid ($/share)				*1.59*	*1.59*	*1.59*	*1.59*	*1.59*
Purchase of common stock [treasury stock]	(7,276.0)	(14,776.0)	(6,298.0)	(7,308.2)	(7,308.2)	(7,308.2)	(7,308.2)	(7,308.2)
Purchase of redeemable noncontrolling interest	(436.0)	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Capital lease obligations	(346.0)	(363.0)	(355.0)					
Other	(396.0)	(271.0)	(242.0)	(242.0)	(242.0)	(242.0)	(242.0)	(242.0)
Total cash from financing activities	**(14,191.0)**	**(12,028.0)**	**(8,458.0)**	**(12,894.9)**	**(12,737.5)**	**(12,580.1)**	**(12,422.6)**	**(12,265.2)**
Effect of exchange rate on cash	194.0	66.0	(33.0)	194.0	66.0	(33.0)	194.0	66.0
Total change in cash and cash equivalents	**632.0**	**(512.0)**	**(845.0)**	**(2,592.2)**	**(1,292.1)**	**(933.2)**	**(166.2)**	**1,251.2**
SUPPLEMENTAL DATA:								
Cash flow before debt paydown								

CHAPTER 3

Depreciation Schedule

Depreciation is accounting for the aging of assets.

> *Depreciation is an income tax deduction that allows a taxpayer to recover the cost or other basis of certain property. It is an annual allowance for the wear and tear, deterioration, or obsolescence of the property.*
>
> *Most types of tangible property (except, land), such as buildings, machinery, vehicles, furniture, and equipment are depreciable. Likewise, certain intangible property, such as patents, copyrights, and computer software is depreciable.*
>
> **—from** IRS.gov

So, in other words, as a company owns and utilizes an asset, its value will most likely decrease. We haven't discussed the balance sheet yet, but if an asset value reduces, there must be another change to one of the other line items in the balance sheet to offset the asset reduction. Accounting rules state that the reduction in asset value can be expensed, with the idea being that the asset's aging or "wear and tear" was partly to do with utilization of the asset to produce or generate revenue. If the item is expensed, net income is reduced, which in turn will reduce the retained earnings in the shareholders' equity section of the balance sheet. We will learn about how net income affects retained earnings in Chapter 5.

Let's take an example of an asset that has a depreciation expense of $5, 000. Depreciation expense reduces net income after taxes, as per the following example. Net income drives the cash flow statement, but since depreciation is a non-cash expense, it is added back to cash.

Income Statement	
Depreciation	(5,000.0)
Taxes (@ 40%)	2,000.0
Net Income	**(3,000.0)**

Cash Flow	
Net Income	**(3,000.0)**
Depreciation	5,000.0
Total Changes in Cash	**2,000.0**

In the balance sheet, net income drives retained earnings. Depreciation will lower the value of the asset being depreciated (the PP&E, which stands for "Property, Plant, and Equipment, " is the balance sheet line item that typically contains the business' assets).

Cash Flow	
Net Income	**(3,000.0)**
Depreciation	5,000.0
Total Changes in Cash	**2,000.0**

Balance Sheet Adjustments	
Cash	2,000.0
PP&E	(5,000.0)
Retained Earnings (Net Income)	(3,000.0)

There are several methods allowed to depreciate assets. Each has its benefits under certain conditions. We will learn about the most popular methods and how they are utilized in this chapter. The major two categories are:

1. Straight line depreciation
2. Accelerated depreciation

STRAIGHT LINE DEPRECIATION

The straight line method of depreciation evenly ages the asset by the number of years that asset is expected to last—its useful life. For example, if we purchased a car for $50, 000, and that car has a useful life of 10 years, the depreciation would be $5, 000 per year. So, next year the asset will have depreciated by $5, 000 and its value would be reduced to $45, 000. In the following year, the asset will be depreciated by another $5, 000 and be worth $40, 000. By Year 10, the asset will be worth zero and have been fully depreciated.

One can also assign a residual value (also known as scrap value) to an asset, which is some minimal value an asset can be worth after the end of its useful life. So, for example, if the car after Year 10 can be sold for $1, 000 for spare parts, then $1, 000 is the residual value. In this case, by Year 10, the value of the car should be $1, 000, not zero. In order to account for residual value into the depreciation formula, we need to depreciate the value of the car less this residual value, or $50, 000 – $1, 000, which is $49, 000. The depreciation will now be $4, 900 per year, which means the next year the value of the car will be $44, 100. By Year 10, the final value of the car will be $1, 000. The definition for straight line depreciation is:

$$\text{Depreciation} = (\text{Fair Value of Asset} - \text{Residual Value}) / \text{Useful Life}$$

ACCELERATED DEPRECIATION

Accelerating depreciation allows a greater depreciation expense earlier in the life of the asset, and a lower depreciation in the later years. The most common reason for accelerating depreciation is that a higher depreciation expense will produce a lower taxable net income, and therefore lower taxes. There are several methods for accelerating depreciation, the most common of which are:

- Declining balance
- Sum of the year's digits
- Modified Accelerated Cost Recovery System (MACRS)

Declining Balance

The declining balance method takes a percentage of the net property balance each year. The net property balance is reduced each year by the depreciation expensed in that particular year.

The percentage applied is calculated by dividing 1 by the life of the asset times an accelerating multiplier:

$$1 / \text{Useful Life} \times \text{Accelerating Multiplier}$$

The multiplier is most commonly 2.0 or 1.5.

In the car example from earlier, the asset has a life of 10 years. If we assume 2.0 as the accelerating multiplier, then the declining balance percentage is:

$$1 / 10 \times 2 = 20\%$$

We will apply 20 percent to the net property balance each year to calculate the accelerated depreciation of the car. So, 20 percent of $50, 000 is $10, 000. The net balance is $40, 000 ($50, 000 – $10, 000). In Year 2 we will apply 20 percent to the $40, 000, which gives us $8, 000. The new net balance is $32, 000 ($40, 000 – $8, 000). In Year 3, we will apply 20 percent to the $32, 000 to get $6, 400. (See Table 3.1.)

TABLE 3.1 Declining Balance Example

Period Ending December 31	2013E	2014E	2015E	2016E	2017E
Net property, plant & equipment	50,000.0	40,000.0	32,000.0	25,600.0	20,480.0
Accelerated depreciation (%)	20%	20%	20%	20%	20%
Depreciation expense	10,000.0	8,000.0	6,400.0	5,120.0	4,096.0

Sum of the Year's Digits

To calculate the sum of the year's digits method, we first take the sum of the digits from 1 to the life of the asset. For example, an asset with a useful life of 10 will have a sum of 55 (1+2+3+4+5+6+7+8+9+10). For Year 1, the percentage will be 10/55, or 18.18 percent. For Year 2, the percentage will be 9/55, or 16.36 percent. Year 3 is 8/55, or 14.55 percent, and so on. This percentage is applied to the base value of the asset and is not reduced by the depreciation each year like in the declining balance method.

Year 1 depreciation = $50,000 × 18.18% or $9,090
Year 2 depreciation = $50,000 × 16.36% or $8,180
Year 3 depreciation = $50,000 × 14.54% or $7,270
Year 4 depreciation = $50,000 × 12.73% or $6,365
Year 5 depreciation = $50,000 × 10.91% or $5,455

Notice in Table 3.2 we are basing the future depreciation on the original balance each year. This differs from the declining balance method, where we recalculate the net property balance each year.

TABLE 3.2 Sum of the Year's Digits Example

Period Ending December 31	2013E	2014E	2015E	2016E	2017E
Net property, plant & equipment	50,000.0				
Accelerated depreciation (%)	18.18%	16.36%	14.54%	12.73%	10.91%
Depreciation expense	9,090.0	8,180.0	7,270.0	6,365.0	5,455.0

Modified Accelerated Cost Recovery System (MACRS)

MACRS is the U.S. tax method of depreciation. The MACRS method is a predefined set of percentages based on the asset's useful life. These percentages are applied to the base value of the asset each year. (You can look up these percentages on irs.gov).

There are several conventions used, each with a different set of calculated percentages, including half-year convention and mid-quarter convention. The differences in conventions are dependent on when exactly the asset is placed in service and starts depreciating. The half-year convention, shown in Table 3.3, assumes the asset is not placed in service and does not begin depreciating until mid-year.

TABLE 3.3 MACRS Half-Year Convention

Year	Depreciation rate for recovery period					
	3-year	5-year	7-year	10-year	15-year	20-year
1	33.33%	20.00%	14.29%	10.00%	5.00%	3.750%
2	44.45	32.00	24.49	18.00	9.50	7.219
3	14.81	19.20	17.49	14.40	8.55	6.677
4	7.41	11.52	12.49	11.52	7.70	6.177
5		11.52	8.93	9.22	6.93	5.713
6		5.76	8.92	7.37	6.23	5.285
7			8.93	6.55	5.90	4.888
8			4.46	6.55	5.90	4.522
9				6.56	5.91	4.462
10				6.55	5.90	4.461
11				3.28	5.91	4.462
12					5.90	4.461
13					5.91	4.462
14					5.90	4.461
15					5.91	4.462
16					2.95	4.461
17						4.462
18						4.461
19						4.462
20						4.461
21						2.231

When looking at the "3-year" percentages in Table 3.3, notice that the first percentage is actually lower (33.33 percent) than the next year's percentage of 44.45 percent, which is not really accelerating. The mid-year convention assumes the asset is not placed in service, and so does not start depreciating until mid-year and so an adjustment has been made to that first percentage.

TABLE 3.4 MACRS Mid-Quarter Convention Placed in Service in First Quarter

Year	Depreciation rate for recovery period					
	3-year	5-year	7-year	10-year	15-year	20-year
1	58.33%	35.00%	25.00%	17.50%	8.75%	6.563%
2	27.78	26.00	21.43	16.50	9.13	7.000
3	12.35	15.60	15.31	13.20	8.21	6.482
4	1.54	11.01	10.93	10.56	7.39	5.996
5		11.01	8.75	8.45	6.65	5.546
6		1.38	8.74	6.76	5.99	5.130
7			8.75	6.55	5.90	4.746
8			1.09	6.55	5.91	4.459
9				6.56	5.90	4.459
10				6.55	5.91	4.459
11				0.82	5.90	4.459
12					5.91	4.460
13					5.90	4.459
14					5.91	4.460
15					5.90	4.459
16					0.74	4.460
17						4.459
18						4.460
19						4.459
20						4.460
21						0.565

The mid-quarter convention, as shown in Table 3.4, assumes the asset starts depreciating in the middle of the quarter. So here the starting percentage of 58.33 percent is higher than that of the half-year convention. Because the asset is placed in service in the first quarter rather than mid-year, the asset will begin depreciating earlier, and will therefore have a greater depreciation expense by the end of the first year.

There are also mid-quarter convention tables where the asset is placed in service in the second, third, and fourth quarters.

TABLE 3.5 Modified Accelerated Cost Recovery System

Period Ending December 31	2013E	2014E	2015E	2016E	2017E
Net property, plant & equipment	50,000.0				
Accelerated depreciation (%)	17.50%	16.50%	13.20%	10.56%	8.45%
Depreciation expense	8,750.0	8,250.0	6,600.0	5,280.0	4,225.0

Determining which table to use really depends on when the assets are placed in service, which

is most likely unobtainable information. So, by default, we typically use the mid-quarter convention where the asset is placed in service in the first quarter, as it results in the greatest depreciation expense in the first year. It is always recommended to consult an asset appraiser and a tax professional to be sure you are using the correct methods of depreciation.

For an asset with a 10 year useful life, using Table 3.4, we would apply 17.50 percent to the value of the asset. For Year 2, the percentage will be 16.50 percent. See Table 3.5:

$$\text{Year 1 depreciation} = \$50,000 \times 17.50\% \text{ or } \$8,750$$

$$\text{Year 2 depreciation} = \$50,000 \times 16.50\% \text{ or } \$8,250$$

$$\text{Year 3 depreciation} = \$50,000 \times 13.20\% \text{ or } \$6,600$$

$$\text{Year 4 depreciation} = \$50,000 \times 10.56\% \text{ or } \$5,280$$

$$\text{Year 5 depreciation} = \$50,000 \times 8.45\% \text{ or } \$4,225$$

Note that quite often there are differences between the income statement reported for generally accepted accounting principles (GAAP) purposes and the income statement for tax purposes. One of the major differences can be the method of depreciation. Common depreciation methods under U.S. GAAP include straight line, declining balance, and sum of the year's digits. Tax accounting uses the Modified Accelerated Cost Recovery System (MACRS). The differences in the net income caused by using a different depreciation method when filing GAAP reports versus tax statements can cause a **deferred tax liability**. We will discuss this in the next section.

DEFERRED TAXES

Deferred Tax Asset

A deferred tax asset is defined as an asset on a company's balance sheet that may be used to reduce income tax expense. A deferred tax asset is most commonly created after receiving a net operating loss (NOL), which occurs when a company's expenses exceed its sales. The IRS allows a company to offset the loss against taxable income in another year. The NOL can be carried back two to five years or carried forward up to 20 years. Note that the number of years a company can carry back or carry forward a loss depends on several business factors, which need to be considered by the IRS on a case-by-case basis. More information on the specific criteria can be found at www.irs.gov. It is always strongly recommended to verify with a certified accountant or tax professional.

NOL Carryback Example

Income Statement	2010	2011	2012
EBT	750.0	1,500.0	(1,000.0)
Taxes (@ 40%)	(300.0)	(600.0)	0.0
Net Income	450.0	900.0	(1,000.0)

The company in this example suffered a net loss in 2012. So, they file for a two-year carry back, which allows the company to offset the 2012 loss by receiving a refund on taxes paid in the prior two years. So that $1, 000 loss becomes a balance from which taxes can be deducted in other years.

NOL Applied to 2010

Beginning Balance	1, 000.0
Taxable Income	750.0
Tax Refund (@ 40%)	300.0
NOL Balance	250.0

We first apply the $1, 000 loss to the $750 of taxable income in 2010, which results in a $300 refund. This leaves us with $250 ($1, 000 – $750) of NOLs left to apply to 2011.

NOL Applied to 2011

Beginning Balance	250.0
Taxable Income	1, 500.0
Tax Refund (@ 40%)	100.0
NOL Balance	0.0

In 2011, we have $1, 500 of taxable income. However, with only $250 in NOLs left, we can only receive a refund on $250 of the $1, 500. So that's a $100 refund ($250 × 40%). Combined with the $300 refund, we have a total of $400 refunded.

If the company had little or no taxable income in the prior years, a company can elect to carry forward the net operating losses for up to 20 years depending on various considerations. Let's take another example, where after the two-year carry back credits have been applied an NOL balance still exists.

Income Statement	2010	2011	2012
EBT	100.0	200.0	(1,000.0)
Taxes (@ 40%)	(40.0)	(80.0)	0.0
Net Income	**60.0**	**120.0**	**(1,000.0)**

The company in this example also suffered a net loss in 2012. The company files for a two-year carry back, which allows the company to offset the 2012 loss by receiving a refund on taxes paid in the prior two years.

NOL Applied to 2010

Beginning Balance	1, 000.0
Taxable Income	100.0
Tax Refund (@ 40%)	40.0
NOL Balance	900.0

So we first apply the $1, 000 loss to the $100 taxable income in 2010, which results in a $40 refund. This leaves us with $900 ($1, 000 – $100) of NOLs left to apply to 2011.

NOL Applied to 2011

Beginning Balance	900.0
Taxable Income	200.0
Tax Refund (@ 40%)	80.0
NOL Balance	700.0

In 2011, we have $200 of taxable income. Applying the NOL will result in an $80 refund, or $120 in total refunds when combined with the 2010 tax refund. Notice we still have $700 in NOLs

left. These can be used to offset future taxes. This $700 balance becomes a deferred tax asset until it is used or no longer usable.

Deferred Tax Liability

A deferred tax liability is caused by temporary accounting differences between the income statement filed for GAAP purposes and the income statement for tax purposes. One common cause of a deferred tax liability is by differing methods of depreciation in a GAAP income statement versus that in a tax income statement. A company can produce a GAAP set of financials using straight line depreciation, for example, yet have a tax set of financials using the MACRS method of depreciation. This causes a deferred tax liability, reducing taxes in the short term.

Let's take a simple example of a company with $100, 000 earnings before interest, taxes, depreciation, and amortization (EBITDA). For GAAP purposes, let's assume we will use the straight line depreciation of $5, 000 ($50, 000/10). Let's also say we have decided to accelerate the depreciation for tax purposes using the MACRS method of depreciation. For an asset with a 10-year useful life, the accelerated depreciation is $8, 750 (17.5% x $50, 000). This will create the income statements shown in Table 3.6 for GAAP and for tax purposes.

The GAAP income statement in the left column shows a lower depreciation expense and shows $95, 000 in earnings before taxes (EBT). The right column, however, the tax income statement, shows a higher depreciation expense, because it has been accelerated. This creates a lower EBT of $91, 250, and results in $1, 500 ($38, 000 – $36, 500) of lower taxes. Now, the GAAP reported taxes of $38, 000, which is the larger amount, is the tax number we see in a company's annual report or 10K. The lower taxes filed for tax purposes is the amount of tax filed to the IRS that we actually have to pay this year. So, the difference between the taxes reported and the taxes we paid ($1, 500) becomes a non-cash item. Just like any expense that we did not yet pay in cash, this non-cash portion of taxes is added back to net income in the cash flow statement. This is a deferred tax liability.

Note that this is a great method to use in order to free up cash in the short term. The deferred tax amount of $1, 500 calculated previously can also be calculated by subtracting the accelerated depreciation expense from the straight line and multiplying by the tax rate.

TABLE 3.6 Income Statements for GAAP and Tax Purposes

Income Statement	GAAP (Straight Line Depreciation)	Tax (MACRS Depreciation)
EBITDA	100,000.0	100,000.0
Depreciation	(5,000.0)	(8,750.0)
EBIT	95,000.0	91,250.0
Interest	0.0	0.0
EBT	95,000.0	91,250.0
Taxes (@ 40%)	(38,000.0)	(36,500.0)
Net Income	**57,000.0**	**54,750.0**

$$\text{Deferred Tax Liability} = (\text{Accelerated Depreciation} - \text{Straight Line Depreciation}) \times \text{Tax \%}$$

or

$$(\$8{,}750 - \$5{,}000) \times 40\% = \$1{,}500$$

In modeling, we use this method, building a projected straight line deprecation schedule, and

an accelerated depreciation schedule. We then subtract the projected straight line deprecation from the accelerated and multiply by the tax rate to get projected deferred tax. We will demonstrate this process with Walmart.

PROJECTING DEPRECIATION

We can now project straight line depreciation, accelerated depreciation, and deferred taxes. The purposes of having a separate depreciation schedule are to allow us to project several methods of depreciation on groups of assets and to project deferred taxes without convoluting the income statement, cash flow statement, and balance sheet.

Straight Line Depreciation

We need to consider depreciation on both the assets the company currently owns and its future property improvements that it is projecting to build (capital expenditures [CAPEX]). This will result in a "tiered" schedule, with depreciation stacking each time a new CAPEX improvement occurs.

We begin with the net value of its assets. We can find Walmart's 2012 net PP&E in page 33 of the annual report: $109, 603. (See Figure 3.1.)

FIGURE 3.1 Walmart Property, Plant, and Equipment

Property and equipment:	
Property and equipment	155,002
Less accumulated depreciation	(45,399)
Property and equipment, net	109,603
Property under capital lease:	
Property under capital lease	5,936
Less accumulated amortization	(3,215)
Property under capital lease, net	2,721

Also notice the line item entitled "property under capital lease, net." As this is also related to property, we may want to include this as well. The deciding factor is whether Walmart counts the depreciation and amortization relating to this as part of the total depreciation and amortization (for example, the $8, 130 in 2012) we had identified earlier in the income statement. Further research reveals the following note on page 37 of Walmart's annual report:

> *Leasehold improvements are depreciated over the shorter of the estimated useful life of the asset or the remaining expected lease term. Depreciation expense, including amortization of property under capital leases, for fiscal 2012, 2011 and 2010 was $8.1 billion, $7.6 billion and $7.2 billion, respectively. Interest costs capitalized on construction projects were $60 million, $63 million and $85 million in fiscal 2012, 2011 and 2010, respectively.*

Notice the previous comment mentions depreciation expense does include amortization of property under capital leases. So let's consider the "property under capital lease, net" 2012 value of $2, 721 as well. In other words, we will combine the $109, 603 plus the $2, 721. Note that some analysts would prefer to keep these line items separate, and so one would then need to separate out the portion of depreciation and amortization relating to the property under capital leases from the portion related to PP&E. For purposes of best illustrating the method of depreciation without getting too convoluted, let's stick with the simple combined approach.

We now need to project depreciation for this net property value. Unfortunately there is difficulty here, as the reported property value is a combination of many different asset classes with different useful lives. The best way to project future depreciation requires a list of every asset that the company owns, the useful life of each asset, each asset's original purchase value, and the year

each asset was purchased. However, it is almost impossible to get this information.

One suggested method to project depreciation is to take a weighted average of the company's net asset value separated by asset class and the useful lives of each asset class, but there is a problem: We do not know when these assets were actually purchased. Further, when performing a word search on "property, " we find the schedule on page 37 of Walmart's annual report (see Figure 3.2) listing the different types of property the company owns and respective useful lives. But, they give us a large range from three to as much as 40 years, which is not enough information to choose an accurate useful life assumption.

The next best method is to analyze the historical depreciation trends. Walmart's depreciation has been $7, 157, $7, 641, and $8, 130 in 2010, 2011, and 2012, respectively. Notice there is a fairly steady upward trend.

We want to ensure we can continue that trend in the future. So, we will build the straight line depreciation schedule with some broad useful life assumptions, then tweak those assumptions to approach projected depreciation levels that continue the same relative trend.

FIGURE 3.2 Walmart Property Useful Lives

(Amounts in millions)	Estimated Useful Lives	As of January 31, 2012	2011
Land	N/A	**$ 23,499**	$ 24,386
Buildings and improvements	3–40 years	**84,275**	79,051
Fixtures and equipment	3–25 years	**39,234**	38,290
Transportation equipment	3–15 years	**2,682**	2,595
Construction in progress	N/A	**5,312**	4,262
Property and equipment		**$155,002**	$148,584
Accumulated depreciation		**(45,399)**	(43,486)
Property and equipment, net		**$109,603**	$105,098

It is important to note that it is unusual to see a huge drop in depreciation unless the company has written down assets or sold assets, or unless a large portion of its assets have been fully depleted. Conversely, it is unusual to see a huge increase in depreciation unless the company has purchased a business or assets. With that noted, we should do some research to ensure there have not been any such significant events to the company's assets.

Let's begin modeling out the depreciation. It is recommended to actually pull the net property number from the balance sheet into the depreciation schedule. We have not yet completed the historical balance sheet, but we can at least input the property numbers into the balance sheet now for proper linking into the depreciation schedule. So in the balance sheet for 2012 (the tab in the template labeled "Balance Sheet"), "property, plant and equipment, net" (Cell F14), let's type in the sum of $109, 603 + $2, 721. Remember that we have decided to combine this value with the "property under capital lease, net" line. A good analyst will always footnote such changes, so let's add a comment or a note to explain the combination. You can right-click the mouse in Cell F14 and select "Insert Comment." This is the cell we link into the deprecation schedule. So, at the top of the depreciation schedule (The tab labeled "Depreciation, " Cell G6), we can link in the 2012 net PP&E by typing "=, " toggling over to the balance sheet, selecting Cell F14, and typing "Enter." Notice we have linked the 2012 balance sheet net PP&E value into the 2013 depreciation schedule. This is intentional. We assume the property balance at the end of 2012 is equal to the property balance at the beginning of 2013. It's that beginning 2013 property balance which will determine the depreciation expense that will be incurred during the year 2013.

We can now depreciate this. We discussed the wide range of useful lives for the assets that make up the PP&E for Walmart (see Figure 3.2). Let's take the midpoint, which is approximately 20 for now; we will later adjust this. There are two rows of useful life years (In the "Depreciation" tab, Rows 10 and 11, respectively) for the PP&E and CAPEX. We can enter our assumption of 20 into Cell G10.

Rows 13 through 18 are where we will lay out the projected depreciation for both the PP&E and each CAPEX. The formula for straight line deprecation is (Asset – Residual Value)/ Useful life. For such a large group of assets we will typically assume the residual value is zero. So, we can simply take the PP&E and divide it by our assumed useful life of 20.

PP&E Depreciation (C ell G13)

Excel Key Strokes	Description
type "="	Enters into "formula" mode
select G6	Net PP&E
type "/"	Divides
select G10	2013 PP&E Years
type "Enter"	End
Formula Result	=G6/G10

This will give us $5, 616.2, which will be our depreciation each year over the life of the asset.

Notice if we copy this formula to the right, as we had done with most formulas on the income statement and cash flow statement, we will receive an error message. This is because, as expected, the cell references also shift to the right as we copy our formula to the right. In other words, the formula "=G6/G10" becomes "=H6/H10" and so on. However, in this case we do not want the cell references to change. We want to be able to copy the formula to the right without changing the cell references. We can do this by adding a "$" before the column references in the original formula. The "$" anchors the cell references. There are three ways to edit Cell G13:

1. Double-click the cell,
2. Hit "F2, " or
3. Edit the cell directly in the formula toolbar, which is located under the menu bar at the top of the spreadsheet.

We can now add "$" to each column reference, changing the formula from "=G6/G10" to "=$G6/$G10." We can now copy this formula to the right.

Notice we did not, but could have included the "$" before the row number as well, producing "=$G$6/$G$10." Doing so would have anchored the row references, but it would not make much difference here, as we are not going to copy this formula to other rows.

FIGURE 3.3 Un-Anchored Formulas

	A	B	C	D
1	Value	10	20	30
2		40	50	60
3	Formula	=B1	=C1	=D1
4		=B2	=C2	=D2
5	Result	10	20	30
6		40	50	60

FIGURE 3.4 Formulas with Anchored Columns

	A	B	C	D
1	Value	10	20	30
2		40	50	60
3	Formula	=$B1	=$B1	=$B1
4		=$B2	=$B2	=$B2
5	Result	10	10	10
6		40	40	40

Anchoring Formula References

As a guide, a cell with a formula such as "=B1, " when copied to the right, will change to "C1" in the second column and to "D1" in the third column, and so on (as shown in Figure 3.3).

However, if we include a dollar sign before the "B" ("=$B1"), copying this formula to the right will leave the "B" reference intact. (See Figure 3.4.) The formula will still read "=$B1" in the second and third columns, but we have only anchored the column reference not the row reference. So, if we were to copy this formula down, the row reference will still change, reading "=$B2" in the second row.

We could have added a "$" to the row reference to keep this from happening. If we were to change the formula to "=$B$1" then we can copy this formula to the right or down and it will always read "=$B$1." (See Figure 3.5.)

Hitting "F4" while in edit mode of a cell is a quick way to add the "$" into these formulas.

After copying the depreciation formula to the right, the depreciation schedule should look like Table 3.7.

Now we can start inputting our CAPEX assumptions and CAPEX depreciation. Remember: We have already projected CAPEX in our cash flow statement, so we can use those projections and link them into the deprecation schedule. Notice the CAPEX projections in our cash flow statement are negative. When linking them in, we want to reverse the signs so they are represented as a positive number on the depreciation schedule. We want these formulas to be inserted into Row 7, so in Cell

G7 we can type "= -" (notice the "-" sign after the "=" sign), on the cash flow statement select the CAPEX in year 2013, cash flow statement Cell G20, and hit "Enter." We should now have the 2013 projected CAPEX as a positive number in our depreciation schedule. We can copy this formula to the right. We do not want the "$" here, as we want those cell column references to shift to the right as we copy the formula to the right.

FIGURE 3.5 Formulas with Anchored Columns and Rows

	A	B	C	D
1	Value	10	20	30
2		40	50	60
3	Formula	=$B$1	=$B$1	=$B$1
4		=$B$1	=$B$1	=$B$1
5	Result	10	10	10
6		10	10	10

TABLE 3.7 Walmart PP&E Depreciation

Depreciation (in U.S.$ millions)					
	Estimates				
Period Ending January 31	2013E	2014E	2015E	2016E	2017E
Property, plant & equipment (beg. of year)	112,324.0				
Capital expenditures (beg. of year)					
Book (GAAP) depreciation					
Useful life					
PP&E years	20				
CAPEX years					
Depreciation					
Existing PP&E	5,616.2	5,616.2	5,616.2	5,616.2	5,616.2
2013 CAPEX					
2014 CAPEX					
2015 CAPEX					
2016 CAPEX					
2017 CAPEX					
Total book depreciation					

We can now depreciate each CAPEX beginning with the 2013 $14, 213.0. It is important to consider timing here. We are assuming the CAPEX will be built and completed in early 2013 and that there will be a full year of depreciation by the end of that year. We now need to make an assumption for the useful life of the CAPEX. Referring back to page 25 of the Walmart annual report, we find the following comment:

These capital expenditures primarily relate to new store growth, as well as remodeling costs for existing stores and our investments in Global eCommerce.

Searching for "property" reveals another useful table (see Figure 3.6) on page 26 of the Walmart annual report.

So, we can assume a majority of the CAPEX spend will go toward "buildings and improvements, " which have a useful life of three to 40 years as per the property, plant, and equipment table on page 37 on the Walmart annual report. (See Figure 3.2.)

FIGURE 3.6 Walmart Allocation of Capital Expenditures

	Allocation of Capital Expenditures Fiscal Years Ending January 31,		
	Projected	Actual	
	2013	**2012**	2011
New stores and clubs, including expansions and relocations	37%	**28%**	24%
Remodels	8%	**12%**	26%
Information systems, distribution and other	18%	**21%**	19%
Total United States	63%	**61%**	69%
Walmart International	37%	**39%**	31%
Total Capital Expenditures	100%	**100%**	100%

As we discussed before, this range is extremely wide. Let's take the midpoint of approximately 20, as we had done with the PP&E, and we will adjust later.

Row 11 is reserved for our CAPEX useful life, so let's input 20 into Cell G11. We can then create our 2013 CAPEX depreciation formula in Row 14.

2013 CAPEX Depreciation (Cell G14)

Excel Key Strokes	Description
type "="	Enters into "formula" mode
select G7	2013 CAPEX
hit "F4"	Adds "$" to cell
type "/"	Divides
select G11	2013 CAPEX Years
hit "F4"	Adds "$" to cell
type "Enter"	End
Formula Result	=$G$7/$G$11

This gives us $710.7 in depreciation from the 2013 CAPEX. This depreciation will, of course, occur every year for 20 years, so we need to copy this formula to the right. (See Table 3.8.)

We can now continue this process for the 2014 CAPEX. Note that as the 2014 CAPEX will not begin until 2014, the depreciation will not start until 2014. So, there will be no depreciation in 2013, or no formula in Cell G15. We will begin in Cell H15. Let's continue to assume the CAPEX spend will go toward the same type of "buildings and improvements, " so we will use 20 again. But it is important to keep this assumption separate from the useful life of the previous CAPEX in case we need to adjust the assumption later.

So, let's input 20 into Cell H11. We can then create our 2014 CAPEX depreciation formula in Row 15.

2014 CAPEX Depreciation (Cell H15)

Excel Key Strokes	Description
type "="	Enters into "formula" mode
select H7	2014 CAPEX
hit "F4"	Adds "$" to cell
type "/"	Divides.
select H11	2014 CAPEX Years
hit "F4"	Adds "$" to cell
type "Enter"	End
Formula Result	=$H$7/$H$11

This depreciation will, of course, occur every year for 20 years, so we need to copy this formula to the right. (See Table 3.9.)

TABLE 3.8 Walmart 2013 CAPEX Depreciation

Depreciation (in U.S.$ millions)					
	Estimates				
Period Ending January 31	2013E	2014E	2015E	2016E	2017E
Property, plant & equipment (beg. of year)	112,324.0				
Capital expenditures (beg. of year)	14,213.0	15,065.8	15,969.7	16,927.9	17,943.6
Book (GAAP) depreciation					
Useful life					
PP&E years	20				
CAPEX years	20				
Depreciation					
Existing PP&E	5,616.2	5,616.2	5,616.2	5,616.2	5,616.2
2013 CAPEX	710.7	710.7	710.7	710.7	710.7
2014 CAPEX					
2015 CAPEX					
2016 CAPEX					
2017 CAPEX					
Total book depreciation					

TABLE 3.9 Walmart 2014 CAPEX Depreciation

Depreciation (in U.S.$ millions)					
	Estimates				
Period Ending January 31	2013E	2014E	2015E	2016E	2017E
Property, plant & equipment (beg. of year)	112,324.0				
Capital expenditures (beg. of year)	14,213.0	15,065.8	15,969.7	16,927.9	17,943.6
Book (GAAP) depreciation					
Useful life					
PP&E years	20				
CAPEX years	20	20			
Depreciation					
Existing PP&E	5,616.2	5,616.2	5,616.2	5,616.2	5,616.2
2013 CAPEX	710.7	710.7	710.7	710.7	710.7
2014 CAPEX		753.3	753.3	753.3	753.3
2015 CAPEX					
2016 CAPEX					
2017 CAPEX					
Total book depreciation					

This pattern should continue for 2015 CAPEX, keeping 20 as the useful life assumption in Cell I11.

2015 CAPEX Depreciation (Cell I16)

Excel Key Strokes	Description
type "="	Enters into "formula" mode
select I7	2015 CAPEX
hit "F4"	Adds "$" to cell
type "/"	Divides.
select I11	2015 CAPEX Years
hit "F4"	Adds "$" to cell
type "Enter"	End
Formula Result	=$I$7/$I$11

And we copy this formula to the right. (See Table 3.10.)

And for 2016 CAPEX, we keep the useful life assumption at 20 in Cell J11.

2016 CAPEX Depreciation (Cell J17)

Excel Key Strokes	Description
type "="""	Enters into "formula" mode
select J7	2016 CAPEX

hit “F4”	Adds “$” to cell
type “/”	Divides.
select J11	2016 CAPEX Years
hit “F4”	Adds “$” to cell
type “Enter”	End
Formula Result	=$J$7/$J$11

We copy this formula to the right. (See Table 3.11.)

For 2017 CAPEX we keep the useful life assumption at 20 in Cell K11.

2017 CAPEX Depreciation (Cell K18)

Excel Key Strokes	Description
type “=“	Enters into “formula” mode
select K7	2017 CAPEX
hit “F4”	Adds “$” to cell
type “/”	Divides
select K11	2017 CAPEX Years
hit “F4”	Adds “$” to cell
type “Enter”	End
Formula Result	=$K$7/$K$11

TABLE 3.10 Walmart 2015 CAPEX Depreciation

Depreciation (in U.S.$ millions)					
	Estimates				
Period Ending January 31	2013E	2014E	2015E	2016E	2017E
Property, plant & equipment (beg. of year)	112,324.0				
Capital expenditures (beg. of year)	14,213.0	15,065.8	15,969.7	16,927.9	17,943.6
Book (GAAP) depreciation					
Useful life					
PP&E years	20				
CAPEX years	20	20	20		
Depreciation					
Existing PP&E	5,616.2	5,616.2	5,616.2	5,616.2	5,616.2
2013 CAPEX	710.7	710.7	710.7	710.7	710.7
2014 CAPEX		753.3	753.3	753.3	753.3
2015 CAPEX			798.5	798.5	798.5
2016 CAPEX					
2017 CAPEX					
Total book depreciation					

TABLE 3.11 Walmart 2016 CAPEX Depreciation

Depreciation (in U.S.$ millions)					
	Estimates				
Period Ending January 31	2013E	2014E	2015E	2016E	2017E
Property, plant & equipment (beg. of year)	112,324.0				
Capital expenditures (beg. of year)	14,213.0	15,065.8	15,969.7	16,927.9	17,943.6
Book (GAAP) depreciation					
Useful life					
PP&E years	20				
CAPEX years	20	20	20	20	
Depreciation					
Existing PP&E	5,616.2	5,616.2	5,616.2	5,616.2	5,616.2
2013 CAPEX	710.7	710.7	710.7	710.7	710.7
2014 CAPEX		753.3	753.3	753.3	753.3
2015 CAPEX			798.5	798.5	798.5
2016 CAPEX				846.4	846.4
2017 CAPEX					
Total book depreciation					

We can now total the depreciation expense in each year. Summing Rows 13 through 18, in Cell G19 we will have "=SUM(G13:G18)." (See Table 3.12.) We can copy this formula to the right.

This gives us 2013 depreciation of $6, 326.9. We can now analyze how this compares to the historical deprecation. In 2010, 2011, and 2012, we had $7, 157, $7, 641, and $8, 130 of depreciation, respectively. This represents a 6–7 percent increase in depreciation each year. Unless there have been major write-downs or divestitures, we should continue to see similar growth in future depreciation. So 6–7 percent growth on $8, 130, means we should have 2013 depreciation around $8, 617.8–$8, 699.1. The 2013 depreciation we projected is significantly lower than this range, so we need to make adjustments to our useful life assumptions. There are two major variables we can adjust: the useful life for the net PP&E or the useful life for the CAPEX. It is important to note that the depreciation of our net PP&E makes up the greater portion of the 2013 depreciation expense. So, we would recommend trying to adjust downward the useful life of the PP&E first. If we adjust it down to 15 (Cell G10), we get $8, 198.9 in total depreciation, which is still lower than the expected range calculated. If we bring it down further, to 10, we get $11, 943.1, which is now too high. If we increase the useful life to 13, this gives us a total depreciation of $9, 351.0, still a bit too high. If we try 14, we get $8, 733.8, a bit higher than the expected range calculated, but very close. Let's stick with this for now, fixing Cell G10 to "14."

The next problem is the 2014 depreciation. With 14 as the useful life for PP&E and 20 as the useful life for CAPEX, we have $9, 487.1 in 2014 total depreciation. This represents a 9 percent increase from the 2013 total depreciation—too large. In order to approach the 6–7 percent increase, we need to increase our CAPEX useful life assumption, which will lower the CAPEX depreciation expense. However, if we increase the 2014 CAPEX assumption, it is only appropriate to adjust every CAPEX useful life assumption accordingly, as we are assuming the company is building or improving the same type of asset every year. So if we increase the useful life for every CAPEX from 2013 to 2017 up to 25 from 20 (Cells G11 through K11), the total depreciation growth decreases from 9 percent year to year to 7 percent. However, notice our total depreciation in 2013 has lowered to $8, 591.7, slightly outside of the ~$8, 600 range we defined previously, but very close. This works.

This process has illustrated that adjusting the useful life for the net PP&E affects the overall balance of total depreciation. So, if our total depreciation is significantly low or high, we should

first adjust the net PP&E useful life assumption. The CAPEX useful life affects the rate at which depreciation increases, so if the total depreciation is increasing too fast or too slow in the future, we should adjust the CAPEX useful life. It does take some practice to get comfortable with these drivers. We want to reiterate that this is not the most accurate way to project depreciation. The most accurate way is to have detailed data on all assets purchased: the cost, date purchased, and useful life of each. Given that this data is very difficult to obtain, we need to focus on the larger trends.

TABLE 3.12 Walmart Total Book Depreciation

Depreciation (in U.S.$ millions)					
	Estimates				
Period Ending January 31	2013E	2014E	2015E	2016E	2017E
Property, plant & equipment (beg. of year)	112,324.0				
Capital expenditures (beg. of year)	14,213.0	15,065.8	15,969.7	16,927.9	17,943.6
Book (GAAP) depreciation					
Useful life					
PP&E years	20				
CAPEX years	20	20	20	20	20
Depreciation					
Existing PP&E	5,616.2	5,616.2	5,616.2	5,616.2	5,616.2
2013 CAPEX	710.7	710.7	710.7	710.7	710.7
2014 CAPEX		753.3	753.3	753.3	753.3
2015 CAPEX			798.5	798.5	798.5
2016 CAPEX				846.4	846.4
2017 CAPEX					897.2
Total book depreciation	6,326.9	7,080.1	7,878.6	8,725.0	9,622.2

We can now link our straight line total depreciation into our income statement. So, on the income statement, where we had left the projected depreciation empty ("Income Statement" tab, Cell G23), we can type "=, " toggle back to the depreciation schedule, select Cell G19, and hit "Enter." We can then copy income statement Cell G23 to the right. Table 3.13 is the updated income statement with our depreciation linked in.

We can also link the straight line depreciation into the cash flow statement. We recommend linking the cash flow statement depreciation from the income statement depreciation, as opposed to linking the cash flow statement depreciation directly from the depreciation schedule. Although this produces the same results, linking the depreciation from the income statement holds better to the concept that you are backing out the very depreciation amount that has been expensed on the income statement, as that depreciation is non-cash.

So in the cash flow statement Cell G9, type "=, " toggle over to the income statement (Cell G23), hit "Enter, " and copy to the right. (See Table 3.14.)

Accelerated Depreciation

As illustrated earlier in this chapter, the purpose of accelerating depreciation here is to create a deferred tax liability. If we are accelerating depreciation for U.S. tax purposes, we must use the MACRS method, as per the IRS:

Most business and investment property placed in service after 1986 is depreciated using MACRS.

—(from www.irs.gov/publications/p527/ch02.html#en_US_2010_publink1000219071)

Because most large Fortune 500 businesses, like Walmart, have so many subsidiaries in various geographic locations, there is no one simple method of creating a deferred tax liability. Further research reveals the table shown in Figure 3.7 that is found on page 47 of the Walmart annual report, but this does not give enough detail as to the actual deferred tax methods.

Further research reveals another detailed note and table found on page 48 of the Walmart annual report, shown in Figure 3.8.

TABLE 3.13 Walmart Income Statement with Depreciation Expense

Consolidated Income Statements (in U.S.$ millions except per share amounts)

	Actuals			Estimates				
Period Ending January 31	**2010A**	**2011A**	**2012A**	**2013E**	**2014E**	**2015E**	**2016E**	**2017E**
Revenue								
Net sales	405,132.0	418,952.0	443,854.0					
% Growth		*3.4%*	*5.9%*					
Membership and other income	2,953.0	2,897.0	3,096.0					
% Growth		*-1.9%*	*6.9%*					
Total revenue	**408,085.0**	**421,849.0**	**446,950.0**	**473,767.0**	**502,193.0**	**532,324.6**	**564,264.1**	**598,119.9**
Y/Y revenue growth (%)		*3.4%*	*6.0%*	*6.0%*	*6.0%*	*6.0%*	*6.0%*	*6.0%*
Cost of goods sold								
Cost of goods sold	**304,106.0**	**314,946.0**	**335,127.0**	**355,325.3**	**376,644.8**	**399,243.5**	**423,198.1**	**448,589.9**
COGS as a % of revenue	*74.5%*	*74.7%*	*75.0%*	*75.0%*	*75.0%*	*75.0%*	*75.0%*	*75.0%*
Gross profit	**103,979.0**	**106,903.0**	**111,823.0**	**118,441.8**	**125,548.3**	**133,081.2**	**141,066.0**	**149,530.0**
Gross profit margin (%)	*25.5%*	*25.3%*	*25.0%*	*25.0%*	*25.0%*	*25.0%*	*25.0%*	*25.0%*
Operating expenses								

Consolidated Income Statements (in U.S.$ millions except per share amounts)

	Actuals			Estimates				
Period Ending January 31	**2010A**	**2011A**	**2012A**	**2013E**	**2014E**	**2015E**	**2016E**	**2017E**
Selling, general and administrative	72,820.0	73,720.0	77,135.0	81,961.7	86,879.4	92,092.2	97,617.7	103,474.7
SG&A as a % of revenue	*17.8%*	*17.5%*	*17.3%*	*17.3%*	*17.3%*	*17.3%*	*17.3%*	*17.3%*
EBITDA	**31,159.0**	**33,183.0**	**34,688.0**	**36,480.1**	**38,668.9**	**40,989.0**	**43,448.3**	**46,055.2**
EBITDA margin (%)	*7.6%*	*7.9%*	*7.8%*	*7.7%*	*7.7%*	*7.7%*	*7.7%*	*7.7%*
Depreciation and amortization	7,157.0	7,641.0	8,130.0	8,591.7	9,194.3	9,833.1	10,510.2	11,227.9
EBIT	**24,002.0**	**25,542.0**	**26,558.0**	**27,888.4**	**29,474.6**	**31,155.9**	**32,938.1**	**34,827.3**
EBIT margin (%)	*5.9%*	*6.1%*	*5.9%*	*5.9%*	*5.9%*	*5.9%*	*5.8%*	*5.8%*

TABLE 3.14 Walmart Cash Flow with Depreciation

Consolidated Statements of Cash Flows (in U.S.$ millions)								
	Actuals			Estimates				
Period Ending January 31	2010A	2011A	2012A	2013E	2014E	2015E	2016E	2017E
Cash flows from operating activities								
Net income	14,883.0	16,993.0	16,387.0	18,685.2	19,748.0	20,874.5	22,068.5	23,334.3
Loss (income) from discontinued operations	79.0	(1,034.0)	67.0	0.0	0.0	0.0	0.0	0.0
Depreciation and amortization	7,157.0	7,641.0	8,130.0	8,591.7	9,194.3	9,833.1	10,510.2	11,227.9
Deferred income taxes	(504.0)	651.0	1,050.0					
Other operating activities	318.0	1,087.0	398.0	318.0	318.0	318.0	318.0	318.0
Changes in operating working capital								
Changes in accounts receivable	(297.0)	(733.0)	(796.0)					
Changes in inventory	2,213.0	(3,205.0)	(3,727.0)					
Changes in accounts payable	1,052.0	2,676.0	2,687.0					
Changes in accrued liabilities	1,348.0	(433.0)	59.0					
Net changes in operating working capital	**4,316.0**	**(1,695.0)**	**(1,777.0)**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**
Total cash flows from operating activities	**26,249.0**	**23,643.0**	**24,255.0**	**27,594.9**	**29,260.3**	**31,025.5**	**32,896.8**	**34,880.2**

Exemplified in Figure 3.7 and Figure 3.8, the deferred tax line items can be made up of so many complex drivers, many of which are not fully disclosed, it is best to project cash flow deferred taxes as an "Other" line item using one of the seven methods learned in Chapter 2. However, as it is quite common practice to calculate deferred taxes using the MACRS method, we will continue with the process for instructional purposes.

As described earlier, in the MACRS method, a percentage is applied each year to the net value of the PP&E, based on its useful life. We can look up these percentages in the MACRS schedules provided by IRS.gov.

So, using the MACRS method of depreciation, we first need to input the percentages relating to the useful lives of both the net PP&E and the CAPEX. We will use the mid-quarter convention, where the asset is placed in service in the first quarter table. (See Table 3.15.)

TABLE 3.15 MACRS Mid-Quarter Convention Placed in Service in First Quarter

	Depreciation rate recovery period					
Year	3-year	5-year	7-year	10-year	15-year	20-year
1	58.33%	35.00%	25.00%	17.50%	8.75%	6.563%
2	27.78	26.00	21.43	16.50	9.13	7.000
3	12.35	15.60	15.31	13.20	8.21	6.482
4	1.54	11.01	10.93	10.56	7.39	5.996
5		11.01	8.75	8.45	6.65	5.546
6		1.38	8.74	6.76	5.99	5.130
7			8.75	6.55	5.90	4.746
8			1.09	6.55	5.91	4.459
9				6.56	5.90	4.459
10				6.55	5.91	4.459
11				0.82	5.90	4.459
12					5.91	4.460
13					5.90	4.459
14					5.91	4.460
15					5.90	4.459
16					0.74	4.460
17						4.459
18						4.460
19						4.459
20						4.460
21						0.565

FIGURE 3.7 Walmart Deferred Tax Provisions

(Amounts in millions)	Fiscal Years Ended January 31, 2012	2011	2010
Current:			
U.S. federal	**$4,596**	$4,600	$5,798
U.S. state and local	**743**	637	599
International	**1,403**	1,466	1,246
Total current tax provision	**6,742**	6,703	7,643
Deferred:			
U.S. federal	**1,444**	818	(432)
U.S. state and local	**57**	39	78
International	**(299)**	19	(133)
Total deferred tax provision	**1,202**	876	(487)
Total provision for income taxes	**$7,944**	$7,579	$7,156

FIGURE 3.8 Walmart Deferred Taxes

Deferred Taxes

The significant components of the Company's deferred tax account balances are as follows:

(Amounts in millions)	January 31, 2012	2011
Deferred tax assets:		
Loss and tax credit carryforwards	**$ 2,996**	$ 2,968
Accrued liabilities	**2,949**	3,532
Share-based compensation	**376**	332
Other	**1,029**	708
Total deferred tax assets	**7,350**	7,540
Valuation allowance	**(2,528)**	(2,899)
Deferred tax assets, net of valuation allowance	**$ 4,822**	$ 4,641
Deferred tax liabilities:		
Property and equipment	**$ 5,891**	$ 4,848
Inventories	**1,627**	1,014
Other	**409**	474
Total deferred tax liabilities	**7,927**	6,336
Net deferred tax liabilities	**$ 3,105**	$ 1,695

We have estimated the combined assets have a useful life of 14. There is no schedule for a 14-year asset, so we will use the closest match, the 15-year MACRS schedule. For the CAPEX, at a useful life of 25 years, we can use the maximum 20 year MACRS schedule. In the model, we can simply hardcode the depreciation rates for PP&E into Row 21, and for the 2013 CAPEX into Row 22. (See Table 3.16.)

The 2014 CAPEX will not begin depreciating until 2014, so our first depreciation rate will be entered into Cell H23. (See Table 3.17.)

We can continue entering depreciation rates for the remaining CAPEX projections. (See Table 3.18.)

We can now begin projecting accelerated depreciation. We simply multiply the base asset value by the percentage in each year. For the projected PP&E depreciation, we will multiply the $112, 324 in Cell G6 by the 8.75 percent in 2013 (Cell G21).

2013 PP&E Accelerated Depreciation (Cell G28)

Excel Key Strokes	Description
type "="	Enters into "formula" mode
select G6	PP&E
type "*"	Multiplies

select G21	2013 PP&E MACRS Rate
type “Enter”	End
Formula Result	=G6 * G21

This will give us $9, 828.4 of accelerated depreciation. In the next year, we will multiply the same $112, 324 PP&E value by the next year’s 2014 MACRS rate. So, we want to reference the same G6 Cell, but the H21 rate. So the formula in Cell H28 will read “=G6 * H21.” You may notice it is wise to anchor the G6 reference in the previous formula. This way, you can simply copy the formula to the right; the reference to the PP&E (G6) will stay fixed, but the reference to the MACRS rates will shift as we copy the formula to the right. In other words, You can add a “$” to the original formula in Cell G28 so the formula reads “=$G6 * G21” (instead of “=G6 * G21”) and copy this formula to the right. (See Table 3.19.)

Once we have this complete we can calculate the depreciation for our first year of CAPEX. Again, we want to start with, and anchor, the reference to the $14, 213.0 of 2013 CAPEX in Cell G7, and we can multiply this by the depreciation percentage each year in Row 22.

TABLE 3.16 Walmart MACRS Percentages through 2013 CAPEX

Depreciation (in U.S.$ millions)					
	Estimates				
Period Ending January 31	2013E	2014E	2015E	2016E	2017E
Accelerated depreciation (%)					
Existing PP&E	8.75%	9.13%	8.21%	7.39%	6.65%
2013 CAPEX	6.56%	7.00%	6.48%	6.00%	5.55%
2014 CAPEX					
2015 CAPEX					
2016 CAPEX					
2017 CAPEX					

TABLE 3.17 Walmart MACRS Percentages through 2014 CAPEX

Depreciation (in U.S.$ millions)					
	Estimates				
Period Ending January 31	2013E	2014E	2015E	2016E	2017E
Accelerated depreciation (%)					
Existing PP&E	8.75%	9.13%	8.21%	7.39%	6.65%
2013 CAPEX	6.56%	7.00%	6.48%	6.00%	5.55%
2014 CAPEX		6.56%	7.00%	6.48%	6.00%
2015 CAPEX					
2016 CAPEX					
2017 CAPEX					

TABLE 3.18 Walmart MACRS Percentages through 2017 CAPEX

Depreciation (in U.S.$ millions)					
	Estimates				
Period Ending January 31	2013E	2014E	2015E	2016E	2017E
Accelerated depreciation (%)					
Existing PP&E	8.75%	9.13%	8.21%	7.39%	6.65%
2013 CAPEX	6.56%	7.00%	6.48%	6.00%	5.55%
2014 CAPEX		6.56%	7.00%	6.48%	6.00%
2015 CAPEX			6.56%	7.00%	6.48%
2016 CAPEX				6.56%	7.00%
2017 CAPEX					6.56%

TABLE 3.19 Walmart Projected Accelerated Depreciation for PP&E

Depreciation (in U.S.$ millions)					
	Estimates				
Period Ending January 31	2013E	2014E	2015E	2016E	2017E
Accelerated depreciation					
Existing PP&E	9,828.4	10,255.2	9,221.8	8,300.7	7,469.5
2013 CAPEX					
2014 CAPEX					
2015 CAPEX					
2016 CAPEX					
2017 CAPEX					
Total tax depreciation					

2013 CAPEX Accelerated Depreciation (Cell G29)

Excel Key Strokes	Description
type "="	Enters into "formula" mode
select G7	2013 CAPEX
hit "F4"	Adds "$" to cell
type "*"	Multiplies
select G22	2013 CAPEX MACRS Rate
type "Enter"	End
Formula Result	=$G$7 * G22

If we copy this to the right, again the numerator will stay fixed and the denominator will shift. (See Table 3.20.)

For 2014 depreciation, we will begin in Cell H30. Remember that this asset will not begin depreciating until 2014, so we will not begin showing a depreciation expense until 2014.

2014 CAPEX Accelerated Depreciation (Cell H30)

Excel Key Strokes	Description
type “=”	Enters into “formula” mode
select H7	2014 CAPEX
hit “F4”	Adds “$” to cell
type “*”	Multiplies
select H23	2014 CAPEX MACRS Rate
type “Enter”	End
Formula Result	=$H$7 * H23

If we copy this to the right, again the numerator will stay fixed and the denominator will shift. (See Table 3.21.)

For 2015 depreciation, we will begin in Cell I31.

2015 CAPEX Accelerated Depreciation (Cell I31)

Excel Key Strokes	Description
type “=”	Enters into “formula” mode
select I7	2015 CAPEX
hit “F4”	Adds “$” to cell
type “*”	Multiplies
select I24	2015 CAPEX MACRS Rate
type “Enter”	End
Formula Result	=$I$7 * I24

TABLE 3.20 Walmart Projected Accelerated Depreciation through 2013 CAPEX

Depreciation (in U.S.$ millions)	Estimates				
Period Ending January 31	2013E	2014E	2015E	2016E	2017E
Accelerated depreciation					
Existing PP&E	9,828.4	10,255.2	9,221.8	8,300.7	7,469.5
2013 CAPEX	932.8	994.9	921.3	852.2	788.3
2014 CAPEX					
2015 CAPEX					
2016 CAPEX					
2017 CAPEX					
Total tax depreciation					

TABLE 3.21 Walmart Projected Accelerated Depreciation through 2014 CAPEX

Depreciation (in U.S.$ millions)	Estimates				
Period Ending January 31	2013E	2014E	2015E	2016E	2017E
Accelerated depreciation					
Existing PP&E	9,828.4	10,255.2	9,221.8	8,300.7	7,469.5
2013 CAPEX	932.8	994.9	921.3	852.2	788.3
2014 CAPEX		988.8	1,054.6	976.6	903.3
2015 CAPEX					
2016 CAPEX					
2017 CAPEX					
Total tax depreciation					

If we copy this to the right, again the numerator will stay fixed and the denominator will shift. (See Table 3.22.)

For 2016 depreciation, we will begin in Cell J32.

2016 CAPEX Accelerated Depreciation (Cell J32)

Excel Key Strokes	Description
type "="	Enters into "formula" mode
select J7	2016 CAPEX
hit "F4"	Adds "$" to cell
type "*"	Multiplies
select J25	2016 CAPEX MACRS Rate
type "Enter"	End
Formula Result	=$J$7 * J25

If we copy this to the right, again the numerator will stay fixed and the denominator will shift. (See Table 3.23.)

And for 2017 depreciation, we will begin in Cell K33.

2017 CAPEX Accelerated Depreciation (Cell K33)

Excel Key Strokes	Description
type "="	Enters into "formula" mode
select K7	2017 CAPEX
hit "F4"	Adds "$" to cell
type "*"	Multiplies
select K26	2017 CAPEX MACRS Rate
type "Enter"	End
Formula Result	=$K$7 *K26

We can now total the accelerated depreciation expense in each year. Summing Rows 28 through 33, in Cell G34 we will have "=SUM(G28:G33)." We can copy this formula to the right. (See Table 3.24.)

Accelerated depreciation is used in this case to create a deferred tax liability. This is achieved by subtracting the straight line depreciation from the accelerated depreciation and multiplying by the tax rate. Please refer back to the simple example earlier in this chapter (see Table 3.6) where we explain how accelerating depreciation creates a deferred tax liability. This is what we are modeling out right now.

So in Row 35, we can take the total accelerated depreciation from Row 34 and subtract out the total straight line depreciation in Row 19. Cell G35 should read, "=G34-G19." We can copy this to the right.

TABLE 3.22 Walmart Projected Accelerated Depreciation through 2015 CAPEX

Depreciation (in U.S.$ millions)	Estimates				
Period Ending January 31	2013E	2014E	2015E	2016E	2017E
Accelerated depreciation					
Existing PP&E	9,828.4	10,255.2	9,221.8	8,300.7	7,469.5
2013 CAPEX	932.8	994.9	921.3	852.2	788.3
2014 CAPEX		988.8	1,054.6	976.6	903.3
2015 CAPEX			1,048.1	1,117.9	1,035.2
2016 CAPEX					
2017 CAPEX					
Total tax depreciation					

TABLE 3.23 Walmart Projected Accelerated Depreciation through 2016 CAPEX

Depreciation (in U.S.$ millions)	Estimates				
Period Ending January 31	2013E	2014E	2015E	2016E	2017E
Accelerated depreciation					
Existing PP&E	9,828.4	10,255.2	9,221.8	8,300.7	7,469.5
2013 CAPEX	932.8	994.9	921.3	852.2	788.3
2014 CAPEX		988.8	1,054.6	976.6	903.3
2015 CAPEX			1,048.1	1,117.9	1,035.2
2016 CAPEX				1,111.0	1,185.0
2017 CAPEX					
Total tax depreciation					

TABLE 3.24 Walmart Total Projected Accelerated Depreciation

Depreciation (in U.S.$ millions)	Estimates				
Period Ending January 31	2013E	2014E	2015E	2016E	2017E
Accelerated depreciation					
Existing PP&E	9,828.4	10,255.2	9,221.8	8,300.7	7,469.5
2013 CAPEX	932.8	994.9	921.3	852.2	788.3
2014 CAPEX		988.8	1,054.6	976.6	903.3
2015 CAPEX			1,048.1	1,117.9	1,035.2
2016 CAPEX				1,111.0	1,185.0
2017 CAPEX					1,177.6
Total tax depreciation	**10,761.1**	**12,238.9**	**12,245.8**	**12,358.4**	**12,558.9**

This difference is multiplied by the tax rate. We can pull the income statement tax rate into Row 36, being careful to pull the exact tax rate from the correct year. Cell G36 should link in from income statement Cell G34. Often we see the wrong years from the income statement being pulled in, so please double-check this. In Cell G36 we can type "=, " toggle over to the income statement, select Cell G34, and hit "Enter." We can copy both formulas in Cell G35 and Cell G36 to the right.

Row 37 is where we can finally calculate deferred taxes. We will multiply Row 35 by Row 36. Cell G37 should read "=G35*G36." We can copy this to the right. The completed depreciation schedule is shown in Table 3.25.

We can now link our deferred taxes into Row 10 in our cash flow statement. In the cash flow statement in G10, we can type "=, " toggle back to the depreciation schedule, select Cell G37, and hit "Enter." We can then copy this to the right. (See Table 3.26.)

We are now done with the depreciation schedule and are ready to move on to the working capital schedule.

TABLE 3.25 Walmart Projected Depreciation and Deferred Tax Schedule

Depreciation (in U.S.$ millions)	Estimates				
Period Ending January 31	2013E	2014E	2015E	2016E	2017E
Property, plant & equipment (beg. of year)	**112,324.0**				
Capital expenditures (beg. of year)	**14,213.0**	**15,065.8**	**15,969.7**	**16,927.9**	**17,943.6**
Book (GAAP) depreciation					
Useful life					
PP&E years	14				
CAPEX years	25	25	25	25	25
Depreciation					
Existing PP&E	8,023.1	8,023.1	8,023.1	8,023.1	8,023.1
2013 CAPEX	568.5	568.5	568.5	568.5	568.5
2014 CAPEX		602.6	602.6	602.6	602.6
2015 CAPEX			638.8	638.8	638.8
2016 CAPEX				677.1	677.1
2017 CAPEX					717.7
Total book depreciation	**8,591.7**	**9,194.3**	**9,833.1**	**10,510.2**	**11,227.9**

Depreciation (in U.S.$ millions)	Estimates				
Period Ending January 31	2013E	2014E	2015E	2016E	2017E
Accelerated depreciation (%)					
Existing PP&E	8.75%	9.13%	8.21%	7.39%	6.65%
2013 CAPEX	6.56%	7.00%	6.48%	6.00%	5.55%
2014 CAPEX		6.56%	7.00%	6.48%	6.00%
2015 CAPEX			6.56%	7.00%	6.48%
2016 CAPEX				6.56%	7.00%
2017 CAPEX					6.56%
Accelerated depreciation					
Existing PP&E	9,828.4	10,255.2	9,221.8	8,300.7	7,469.5
2013 CAPEX	932.8	994.9	921.3	852.2	788.3
2014 CAPEX		988.8	1,054.6	976.6	903.3
2015 CAPEX			1,048.1	1,117.9	1,035.2
2016 CAPEX				1,111.0	1,185.0
2017 CAPEX					1,177.6
Total tax depreciation	**10,761.1**	**12,238.9**	**12,245.8**	**12,358.4**	**12,558.9**
Difference in depreciation	2,169.5	3,044.6	2,412.7	1,848.2	1,331.0
Tax rate (%)	*33%*	*33%*	*33%*	*33%*	*33%*
Deferred taxes	**715.9**	**1,004.7**	**796.2**	**609.9**	**439.2**

TABLE 3.26 Walmart Projected Cash Flow from Operating Activities

Consolidated Statements of Cash Flows (in U.S.$ millions)	Actuals			Estimates				
Period Ending January 31	2010A	2011A	2012A	2013E	2014E	2015E	2016E	2017E
Cash flows from operating activities								
Net income	14,883.0	16,993.0	16,387.0	18,685.2	19,748.0	20,874.5	22,068.5	23,334.3
Loss (income) from discontinued operations to net cash	79.0	(1,034.0)	67.0	0.0	0.0	0.0	0.0	0.0
Depreciation and amortization	7,157.0	7,641.0	8,130.0	8,591.7	9,194.3	9,833.1	10,510.2	11,227.9
Deferred income taxes	(504.0)	651.0	1,050.0	715.9	1,004.7	796.2	609.9	439.2
Other operating activities	318.0	1,087.0	398.0	318.0	318.0	318.0	318.0	318.0

CHAPTER 4

Working Capital

Working capital is a measure of a company's current assets less its current liabilities.

$$\text{Working Capital} = \text{Current Assets} - \text{Current Liabilities}$$

Asset: An asset is a resource held to produce some economic benefit. Examples of assets are cash, inventory, accounts receivable, and property.

Current Asset: A current asset is an asset whose economic benefit is expected to come within one year. Examples of current assets are cash, inventory, and accounts receivable.

Liability: A liability is any debt or financial obligation of a company. Examples of liabilities are accounts payable, accrued expenses, long-term debt, and a deferred tax liability.

Current Liability: A current liability is a debt or financial obligation that is due within one year. Examples of current liabilities are accounts payable and accrued expenses.

A deeper explanation of the assets and liabilities are reserved for Chapter 5.

So, the working capital, or the current assets less the current liabilities, helps us determine if cash coming in from our current assets will cover the liabilities that are coming due in the next 12 months. If working capital is positive, current assets are greater than the current liabilities, we will potentially have more than enough funds to cover our liabilities coming due. If the working capital is negative, current assets are less than the current liabilities, we do not have enough resources to pay our current liabilities, a working capital deficit. For this reason, working capital is regarded as a measure of a company's near term liquidity.

OPERATING WORKING CAPITAL

For modeling purposes we focus on a narrower definition of working capital called operating working capital. Operating working capital is also defined as current assets less current liabilities. However, we do not include cash and cash equivalents as part of current assets and we do not include debts as part of current liabilities.

Cash equivalents: Cash equivalents are assets that are readily convertible into cash, such as money market holdings, short-term government bonds or Treasury bills, marketable securities, and commercial paper. Cash equivalents are often considered as cash because they can be easily liquidated when necessary.

So, removing cash and cash equivalents, we are left with for current assets:

- Accounts receivable
- Inventory
- Prepaid expenses

And removing debts, we are left with for current liabilities:

- Accounts payable
- Accrued expenses

Note that there are other possible current assets or current liabilities; these are a few of the most common items.

Each of these line items is most closely related to the company's operations. For example, accounts receivable is the portion of revenue we did not collect in cash, and accrued expenses is the portion of expenses we did not yet pay in cash. For this reason, operating working capital is a good measure of how much cash is coming in from the day-to-day operations. Another way to look at this is: Operating working capital helps track how well a company is managing its cash generating from day-to-day operations. In contrast working capital, because it includes cash, cash equivalents, and debts, may not give the clearest measure of just the day to day operations.

How do we know if the individual items are really performing well? If we see accounts receivable, for example, increasing year over year, this could mean we have an ever-growing collections problem. However, this could also mean that the accounts receivables are growing because the revenue is growing, which would be a good indicator of strong business growth. So it is not enough to look at these operating working capital line items independently in order to determine their performance; we need to compare these line items to some related income statement line item. We use a measure called "days" to track how well we are collecting our receivables or paying our payables. Days are measured by dividing the receivable or payable by its related income statement item and multiplying by 360.

For example, let's say in 2012 the accounts receivable balance is $25, 000 and the revenue is $100, 000.

Income Statement	
Revenue	100,000.0
COGS	10,000.0
Operating Expenses	85,000.0
EBITDA	**5,000.0**

Operating Working Capital	
Accounts Receivable	25,000.0
Inventory	7,500.0
Prepaid Expenses	1,000.0
Accounts Payable	12,500.0
Accrued Expenses	15,000.0
Net Working Capital	**6,000.0**

The accounts receivable divided by the revenue gives us 25 percent. So, 25 percent of our 2012 revenue has not yet been collected. We multiply this percentage by the number of days in one year to get an equivalent number representing how many days these receivables have been left outstanding: 25% × 360 = 90, so of the 2012 revenue, 90 days are outstanding. As a rule of thumb, many companies require customer receipts to be paid within 30 days. However, depending on the business 60, 90, or even more could be acceptable. Ninety could be considered high or it could be okay, depending on the business model and the product sold. Notice we have used 360 days instead of 365. Either way is acceptable; however, we more commonly use 360 because this is divisible by 12, which would make the modeling simpler if we ever wanted to break the year column down into 12 months.

$$\text{Accounts Receivable Days} = \frac{\text{Accounts Receivable}}{\text{Revenue}} \times 360$$

It is important to note that we have made a simplifying assumption in this example for clarity. We took the last year's accounts receivable balance as the numerator in the calculation. In the actual analysis, it is important to take an average of the ending balances from the year being analyzed and the previous year. Because balance sheet items are balances at a specific point in time (we will learn about this in Chapter 5), averaging the current year and previous year's performance give us a better indicator of measurement for the entire year. Income statement and

cash flow items actually give us total performance over an entire period, so averaging doesn't apply. The complete formula for accounts receivable days in 2012 is:

$$2012\ \text{Accounts Receivable Days} = \frac{\text{Average}\,(2012\ \text{Accounts Receivable}, 2011\ \text{Accounts Receivable})}{2012\ \text{Revenue}} \times 360$$

Let's take another example using a liability (accrued expenses). Let's say the accrued expenses balance in 2012 is $15, 000 and is made up of unpaid office rent. The 2012 income statement expense is $85, 000. The accrued expenses of $15, 000 divided by $85, 000 gives us 17.6 percent. So, 17.6 percent of our 2012 expenses have not yet been paid. We multiply this percentage by the number of days in one year to get an equivalent number representing how many days these payables have been left outstanding: 17.6% × 360 = 63.4, so of the 2012 expense, 63.4 days are still outstanding, which could be considered too high in this case, especially considering rent should typically be paid every 30 days.

$$\text{Accrued Expenses Days} = \frac{\text{Accrued Expenses}}{\text{Operating Expenses}} \times 360$$

We again simplified the example for purposes of instruction. When performing the actual analysis we take the average of the accrued expenses balance in the year being analyzed and the prior year.

$$2012\ \text{Accrued Expenses Days} = \frac{\text{Average}\,(2012\ \text{Accrued Expenses}, 2011\ \text{Accrued Expenses})}{2012\ \text{Operating Expenses}} \times 360$$

WALMART'S OPERATING WORKING CAPITAL

Let's now take a look at Walmart's working capital line items. (See Figure 4.1.) We use Walmart's balance sheet, found on page 33 of the Walmart annual report to identify which are the proper current asset and current liability line items.

FIGURE 4.1 Walmart Balance Sheet

(Amounts in millions except per share data)	As of January 31, 2012	2011
ASSETS		
Current assets:		
Cash and cash equivalents	$ 6,550	$ 7,395
Receivables, net	5,937	5,089
Inventories	40,714	36,437
Prepaid expenses and other	1,685	2,960
Current assets of discontinued operations	89	131
Total current assets	54,975	52,012
Property and equipment:		
Property and equipment	155,002	148,584
Less accumulated depreciation	(45,399)	(43,486)
Property and equipment, net	109,603	105,098
Property under capital lease:		
Property under capital lease	5,936	5,905
Less accumulated amortization	(3,215)	(3,125)
Property under capital lease, net	2,721	2,780
Goodwill	20,651	16,763
Other assets and deferred charges	5,456	4,129
Total assets	$193,406	$180,782
LIABILITIES AND EQUITY		
Current liabilities:		
Short-term borrowings	$ 4,047	$ 1,031
Accounts payable	36,608	33,676
Accrued liabilities	18,154	18,701
Accrued income taxes	1,164	157
Long-term debt due within one year	1,975	4,655
Obligations under capital leases due within one year	326	336
Current liabilities of discontinued operations	26	47
Total current liabilities	62,300	58,603
Long-term debt	44,070	40,692
Long-term obligations under capital leases	3,009	3,150
Deferred income taxes and other	7,862	6,682
Redeemable noncontrolling interest	404	408
Commitments and contingencies		
Equity:		
Preferred stock ($0.10 par value; 100 shares authorized, none issued)	—	—
Common stock ($0.10 par value; 11,000 shares authorized, 3,418 and 3,516 issued and outstanding at January 31, 2012 and 2011, respectively)	342	352
Capital in excess of par value	3,692	3,577
Retained earnings	68,691	63,967
Accumulated other comprehensive income (loss)	(1,410)	646
Total Walmart shareholders' equity	71,315	68,542
Noncontrolling interest	4,446	2,705
Total equity	75,761	71,247
Total liabilities and equity	$193,406	$180,782

See accompanying notes.

Starting from the top of the balance sheet, we know cash is not included in operating working capital. The next three line items ("Receivables, net, " "Inventories, " and "Prepaid expenses and other") are operating working capital line items. "Current assets of discontinued operations" we are assuming is based on the non-recurring event "discontinued operations." We will not include non-recurring or extraordinary items as operating working capital, as they are not indicative of ongoing operations.

On the liabilities side, there is "Short-term borrowings, " which is not an operating working capital line item. The next three line items ("Accounts payable, " "Accrued liabilities, " and "Accrued income taxes") are operating working capital line items.

Accrued Income Taxes vs. Deferred Taxes

We believe there is a difference between accrued

income taxes and deferred taxes, although we have seen some entities and resources describe them as one in the same. This topic is a bit gray and consists of varying views. As discussed in Chapter 3, deferred taxes are created due to timing differences in accounting for generally accepted accounting principles (GAAP) purposes versus tax purposes. We described differing depreciation methods as one possible way to create a deferred tax liability. However, we have found accrued income taxes to be the actual amount of taxes owed in a given period, but not yet paid. So whereas deferred taxes is projected based on some accounting timing differences, accrued income taxes can simply be projected as a percent of the taxes due, and as such, we will consider them operating.

Remember that operating working capital line items are related to some operating line item. "Long-term debt due within one year" and "Obligations under capital leases due within one year, " debts and obligations, are not included in operating working capital. "Current liabilities of discontinued operations" is also not considered operating working capital for the same reason we did not include "Current assets of discontinued operations"'that is, we have assumed it is an extraordinary item as it is related to discontinued operations.

So we have now identified the following line items from the balance sheet to be used in our operating working capital schedule:

- Receivables
- Inventory
- Prepaid expenses and other
- Accounts payable
- Accrued liabilities
- Accrued income taxes

We can now proceed to the operating working capital schedule in the model and rework the schedule so that we have these six line items, including "Receivables, net, " "Inventories, " and "Prepaid expenses and other" in the Current assets section; and "Accounts payable, " "Accrued liabilities, " and "Accrued income taxes" in the Current liabilities section.

TABLE 4.1 Walmart Historical Balance Sheet Current Assets

Consolidated Balance Sheets (in U.S.$ millions)	Actuals		
On January 31	2010A	2011A	2012A
Assets			
Current assets:			
Cash and cash equivalents			
Receivables, net		5,089.0	5,937.0
Inventories		36,437.0	40,714.0
Prepaid expenses and other		2,960.0	1,685.0
Other current assets (discontinued operations)			
Total current assets			

As we did with the Net Property, plant, and equipment in the depreciation schedule, it is recommended to actually pull these numbers from the balance sheet into the operating working capital schedule. We have not yet completed the historical balance sheet, but we can at least input the historical numbers into the balance sheet now for proper linking into the operating working capital schedule. So in the balance sheet for 2011 and 2012, for "Receivables, net, " we can enter $5, 089 and $5, 937 from the Walmart balance sheet (see Figure 4.1) into Cells E9 and F9, respectively. Walmart did not provide the 2010 balance sheet in this report so we will leave 2010 out. We can do the same for "Inventories" in Row 10 and "Prepaid expenses and other" in Row 11. (See Table 4.1.)

We can also hardcode in the 2011 and 2012 "Accounts payable, " "Accrued liabilities, " and "Accrued income taxes" into balance sheet Rows 21, 22, and 23, respectively. (See Table 4.2.)

Receivables

We can now link these rows into the operating working capital schedule. Let's proceed to the tab in the model titled "Operating Working Capital." At the top of the schedule (Cell E7), we can link in the 2011 receivables in from the balance sheet by typing "=, " toggling over to the Balance Sheet, selecting Cell E9, and typing "Enter." We can copy this one cell to the right for 2012. (See Table 4.3.)

TABLE 4.2 Walmart Historical Current Liabilities

Consolidated Balance Sheets			
(in U.S.$ millions)		Actuals	
On January 31	2010A	2011A	2012A
Liabilities			
Current liabilities:			
Short-term debt			
Accounts payable		33,676.0	36,608.0
Accrued liabilities		18,701.0	18,154.0
Accrued income taxes		157.0	1,164.0
Long-term debt due within one year			
Obligations under capital leases due within one year			
Current liabilities of discontinued operations			
Total current liabilities			

We also should calculate the historical days, which will help us make better projection assumptions. Keeping in line with the earlier example, we can calculate historical receivable days using the following formula:

$$2012\,\text{Days Receivable} = \frac{\text{Average}(2012\,\text{Receivables}, 2011\,\text{Receivables})}{2012\,\text{Revenue}} \times 360$$

TABLE 4.3 Walmart Historical Operating Working Capital Receivables

Operating Working Capital Schedule (OWC)			
(in U.S.$ millions)		Actuals	
On January 31	2010A	2011A	2012A
Current assets			
Receivables, net		5,089.0	5,937.0
Days receivable			
Inventories			
Inventory turnover days			
Prepaid expenses and other			
Days prepaid			
Total current assets			

So, in operating working capital Cell F8, we can:

2012 Days Receivable (Cell F8)

Excel Key Strokes	Description
type "="	Enters into "formula" mode
type "average("	Creates the "Average" formula

select Cell F7	2012 Receivables
type “, ”	Separates the two values we want to average
select Cell E7	2011 Receivables
type “)”	Completes the “Average” formula
type “/”	Divides
toggle over to the income statement and select Cell F11	2012 Revenue
type “*360”	Multiplies times 360
type “Enter”	End
Formula Result	=AVERAGE(F7, E7)/‘Income Statement’!F11*360

This should give us 4.4 days, which is quite low. Note that a high level of accounts receivable days could imply there is a large portion of receivables that have not been collected.

Note: Do not copy this formula beyond 2012, as we will be providing our own assumption drivers for projections in 2013. This formula is solely for the purposes of calculating historical metrics.

Inventory

The same process can continue for the remaining operating working capital line items. We need to take care in understanding which income statement line item the operating working capital item is referring to. In some cases, this is obvious. For example, accounts receivable is always related to revenue and inventory is related to COGS.

So we can link “inventories” in from Row 10 on the balance sheet. In operating working capital Cell E9, we can type “=, ” toggle over to the balance sheet, select Cell E10, and hit “Enter.” We can copy this one cell to the right for 2012. We can now calculate the inventories days (also known as turnover):

$$\text{2012 Inventory Days} = \frac{\text{Average(2012 Inventories, 2011 Inventories)}}{\text{2012 COGS}} \times 360$$

So, in operating working capital Cell F10, we can:

2012 Inventory Days (Cell F10)	
Excel Key Strokes	**Description**
type “=”	Enters into “formula” mode
type “average(”	Creates the “Average” formula
select Cell F9	2012 Inventories

type “, ”	Separates the two values we want to average.
select Cell E9	2011 Inventories
type “)”	Completes the “Average” formula
type “/”	Divides
toggle over to the income statement and select Cell F14	2012 COGS
type “*360”	Multiplies times 360
type “Enter”	End
Formula Result	=AVERAGE(F9, E9)/‘Income Statement’!F14*360

This should give us 41.4 days.

Prepaid Expenses

The same process can be repeated for the next line item, “Prepaid expenses.” We first link “Prepaid expenses” in from Row 11 on the balance sheet. In operating working capital Cell E11 we can type “=, ” toggle over to the balance sheet, select Cell E11, and hit “Enter.” We can copy this one cell to the right for 2012.

In this case it is not clear what the related income statement line item to prepaid expenses is. We need to consider what income statement expense the company is actually prepaying. If it is expenses to the manufacturer, for example, then we can relate prepaid expenses to COGS. However, if it is rent payments, then we should be relating prepaid expenses to SG&A. Unfortunately, in this case, there is no further clarifying information in the Walmart annual report. We will, then, make the
educated guess that this is related to SG&A, as 1) we only have two choices in this case (COGS or SG&A) and 2) prepaid expenses have more often been related to SG&A than COGS. Note that we are mainly concerned about trends here, and so it is safe to say that as both the SG&A and COGS costs are growing at the same rate of revenue, either way we relate prepaid expenses to, we will get a trend growing at the rate of revenue.

So, the formula for the historical days prepaid is:

$$2012\,\text{Days Prepaid} = \frac{\text{Average}(2012\,\text{Prepaid Expenses}, 2011\,\text{Prepaid Expenses})}{2012\ \text{SG\&A}} \times 360$$

So, in Working Capital Cell F12, we can:

2012 Days Prepaid (Cell F12)

Excel Key Strokes	**Description**
type “=”	Enters into “formula” mode
type “average(”	Creates the “Average” formula
select Cell F11	2012 Prepaid Expenses

type “, ”	Separates the two values we want to average
select Cell E11	2011 Prepaid Expenses
type “)”	Completes the “Average” formula
type “/”	Divides
toggle over to the income statement and select Cell F19	2012 SG&A
type “*360”	Multiplies times 360
type “Enter”	End
Formula Result	=AVERAGE(F11, E11)/‘Income Statement’! F19*360

This should give us 10.8 days.

We can now total the three current asset line items into Row 13, taking care not to include the “days” metric into the total, so Cell E13 should read “=E11+E9+E7.” We can copy this formula to the right and you should have what we have in Table 4.4.

Accounts Payable

We can now repeat this procedure for the current liability line items, “Accounts payable, ” “Accrued liabilities, ” and “Accrued income taxes.” We first link “Accounts payable” in from Row 21 on the balance sheet. In operating working capital Cell E15 we can type “=, ” toggle over to the balance sheet, select Cell E21, and hit “Enter.” We can copy this one cell to the right for 2012. Accounts payable is most commonly related to COGS, but it’s worth a bit of research to be sure. Unfortunately our research has not revealed any new information, so we will stay with the default assumption. We can calculate the historical days by this formula:

TABLE 4.4 Walmart Historical Working Capital Current Assets

Operating Working Capital Schedule (OWC)			
(in U.S.$ millions)		Actuals	
On January 31	**2010A**	**2011A**	**2012A**
Current assets			
Receivables, net		5,089.0	5,937.0
Days receivable			*4.4*
Inventories		36,437.0	40,714.0
Inventory turnover days			*41.4*
Prepaid expenses and other		2,960.0	1,685.0
Days prepaid			*10.8*
Total current assets		**44,486.0**	**48,336.0**

$$2012\,\text{Days Payable} = \frac{\text{Average}(2012\,\text{Accounts Payable}, 2011\,\text{Accounts Payable})}{2012\ \text{COGS}} \times 360$$

2012 Days Payable (Cell F16)

Excel Key Strokes	Description
type "="	Enters into "formula" mode
type "average("	Creates the "Average" formula
select Cell F15	2012 Accounts Payable
type ", "	Separates the two values we want to average
select Cell E15	2011 Accounts Payable
type ")"	Completes the "Average" formula
type "/"	Divides
toggle over to the income statement and select Cell F14	2012 COGS
type "*360"	Multiplies times 360
type "Enter"	End
Formula Result	=AVERAGE(F15, E15)/'Income Statement'! F14*360

This gives us 37.8, and we can move on to accrued liabilities.

FIGURE 4.2 Walmart Accrued Liabilities

(Amounts in millions)	As of January 31, 2012	2011
Accrued wages and benefits [1]	$ 5,089	$ 5,895
Self-insurance [2]	3,638	3,447
Other [3]	9,427	9,359
Total accrued liabilities	$18,154	$18,701

(1) Accrued wages and benefits include accrued wages, salaries, vacation, bonuses and other incentive plans.

(2) Self-insurance consists of all insurance-related liabilities, such as workers' compensation, general liability, vehicle liability, property and employee-related health care benefits.

(3) Other accrued liabilities consist of various items such as accrued taxes, maintenance, utilities, advertising and interest.

Accrued Liabilities

We first link "Accrued liabilities" in from Row 22 on the balance sheet. In working capital Cell E17 we can type "=, " toggle over to the balance sheet, select Cell E22, and hit "Enter." We can copy this one cell to the right for 2012. Accrued liabilities are commonly related to an operating expense. Further research uncovers Figure 4.2, found on page 43 of the Walmart annual report.

This explains the majority of accrued liabilities are made up of "Wages and benefits" and "Insurance, " which are operating expenses. Since we only have one major operating expense line item (SG&A), we will use that.

We can calculate the historical days by this formula:

$$2012\ \text{Days Payable} = \frac{\text{Average}(2012\ \text{Accrued Liabilities}, 2011\ \text{Accrued Liabilities})}{2012\ \text{SG\&A}} \times 360$$

2012 Days Payable (Cell F18)

Excel Key Strokes	Description
type "="	Enters into "formula" mode
type "average("	Creates the "Average" formula
select Cell F17	2012 Accrued Liabilities
type ", "	Separates the two values we want to average
select Cell E17	2011 Accrued Liabilities
type ")"	Completes the "Average" formula

type “/”	Divides
toggle over to the income statement and select cell F19	2012 SG&A
type “*360”	Multiplies times 360
type “Enter”	End
Formula Result	=AVERAGE(F17, E17)/‘Income Statement’! F19*360

This gives us 86.0 days.

Accrued Income Taxes

We are now left with “Accrued income taxes, ” which we link in from Row 23 in the balance sheet. In working capital Cell E19 we can type “=, ” toggle over to the balance sheet, select Cell E23, and hit “Enter.” We can copy this one cell to the right for 2012. Accrued income taxes are related to the income tax expense line item in the income statement. So we can calculate the historical days by this formula:

$$2012\,\text{Days Payable} = \frac{\text{Average}(2012\,\text{Accrued Income Taxes}, 2011\,\text{Accrued Income Taxes})}{2012\,\text{Income Tax Expense}} \times 360$$

2012 Days Payable (Cell F20)

Excel Key Strokes	**Description**
type “=”	Enters into “formula” mode
type “average(”	Creates the “Average” formula
select Cell F19	2012 Accrued Income Taxes
type “, ”	Separates the two values we want to average
select Cell E19	2011 Accrued Income Taxes
type “)”	Completes the “Average” formula
type “/”	Divides
toggle over to the income statement and select Cell F33	2012 Income Tax Expense
type “*360”	Multiplies times 360
type “Enter”	End

Formula Result	=AVERAGE(F19, E19)/'Income Statement'! F33*360

TABLE 4.5 Walmart Historical Operating Working Capital Schedule

Operating Working Capital Schedule (OWC)			
(in U.S.$ millions)		Actuals	
On January 31	**2010A**	**2011A**	**2012A**
Current assets			
Receivables, net		5,089.0	5,937.0
Days receivable			*4.4*
Inventories		36,437.0	40,714.0
Inventory turnover days			*41.4*
Prepaid expenses and other		2,960.0	1,685.0
Days prepaid			*10.8*
Total current assets		**44,486.0**	**48,336.0**
Current liabilities			
Accounts payable		33,676.0	36,608.0
Days payable			*37.8*
Accrued liabilities		18,701.0	18,154.0
Days payable			*86.0*
Accrued taxes		157.0	1,164.0
Days payable			*29.9*
Total current liabilities		**52,534.0**	**55,926.0**
Total operating working capital		**(8,048.0)**	**(7,590.0)**

This gives us 29.9 days. We can now total the three "Current liability" line items into Row 21, taking care not to include the "days" metric into the total. Cell E21 should read "=E19+E17+E15."

The line directly underneath "total current liabilities" ("total operating working capital") is calculated by subtracting the total current liabilities from total current assets. So, in Cell E22 we can type "= E13-E21." We can copy both Cell E22 and E21 to the right to get what we have in Table 4.5.

We can now start projecting the operating working capital schedule.

PROJECTING OPERATING WORKING CAPITAL

In order to project operating working capital, we will use the 2012 days calculated for each line item as an indicator of next year's operating working capital performance. It is also recommended to pull in 2010 and prior years' working capital numbers from previous Walmart research reports

for more color on historical days trends if you have time to dig up that information; we will stick to just the 2012 days for purposes of this analysis.

Receivables

The receivable days in 2012 were 4.4. Remember that 30 days is a typical range for receivables, but they could also be higher or lower. For good projections we want to know if the 4.4 days levels will continue, or if the company will start to perform within the more typical boundaries of 30 days. A quick word search reveals the following note on page 37 of the Walmart annual report:

> *Receivables are stated at their carrying values, net of a reserve for doubtful accounts. Receivables consist primarily of amounts due from:*
>
> - *insurance companies resulting from pharmacy sales;*
> - *banks for customer credit card, debit card and electronic bank transfers that take in excess of seven days to process;*
> - *suppliers for marketing or incentive programs;*
> - *consumer financing programs in certain international subsidiaries; and*
> - *real estate transactions. . . .*

So for now, let's take the previous year's 4.4 days for our projections. Let's type "4.4" into Cell G8 as our assumption for 2013, and we can copy this to the right. In order to use the projected days to drive estimated accounts receivable, we need to reverse-engineer the standard receivable days formula used earlier:

$$2012\,\text{Days Receivable} = \frac{\text{Average}(2012\,\text{Receivables}, 2011\,\text{Receivables})}{2012\ \text{Revenue}} \times 360$$

For 2013 the formula would read:

$$2013\,\text{Days Receivable} = \frac{\text{Average}(2013\,\text{Receivables}, 2012\,\text{Receivables})}{2013\ \text{Revenue}} \times 360$$

Now we have days receivable (our projected assumption), and we want to solve for 2013 receivables. So we can divide both sides of the equation by 360, giving us:

$$\frac{2013\,\text{Days Receivable}}{360} = \frac{\text{Average}(2013\,\text{Receivables}, 2012\,\text{Receivables})}{2013\ \text{Revenue}}$$

We can multiply both sides of the equation by 2013 revenue, giving us:

$$\frac{2013\ \text{Days Receivable}}{360} \times 2013\ \text{Revenue} = \text{Avg} \quad (2013\ \text{Receivables}, 2012\ \text{Receivables})$$

So, in order to get 2013 Receivables, the formula is:

$$\frac{2013\ \text{Days Receivable}}{360} \times 2013\ \text{Revenue}$$

We will stick with the "2013 Days Receivable / 360 × 2013 Revenue" formula to calculate the 2013 projections. And this should make sense. Remember in the original basic formula (Receivables / Revenue × 360), the "Receivables / Revenue" part of the formula gives us a percentage. This percentage answers, "What percent of revenue booked is left outstanding?"

Remember the first example in this chapter, where we had $25, 000 of receivables after booking $100, 000 in revenue, representing 25 percent of our revenue still outstanding. We then multiplied the percentage by 360 to convert into an estimated number of days outstanding. So in the example, 360 times 25 percent is 90 days. Now, in the reverse-engineered formula (2013 Days Receivable / 360 × 2013 Revenue), the "2013 Days Receivable / 360" part of the formula backs into that percentage outstanding, or 90/360, giving us 25 percent. We simply multiply that percentage by the projected revenue to get future estimated receivables.

2013 Receivables (Cell G7)

Excel Key Strokes	**Description**
type "="	Begins the formula
select Cell G8	2013 Days Receivable
type "/360"	Divides by 360
type "*"	Multiplies
toggle over to the income statement and select Cell G11	2013 Revenue
hit "Enter"	End
Formula Result	=G8/360*'Income Statement'! G11

We can copy this formula to the right through 2017 to complete our receivables projections. (See Table 4.6.)

Inventories

We can repeat this process for each working capital line item. But remember each item is related to different income statement line items, so for inventories we have:

$$2013\ \text{Inventories} = \frac{2013\ \text{Inventory Days}}{360} \times 2013\ \text{COGS}$$

TABLE 4.6 Walmart Projected Operating Working Capital Receivables

Operating Working Capital Schedule (OWC)								
(in U.S.$ millions)	Actuals			Estimates				
On January 31	2010A	2011A	2012A	2013E	2014E	2015E	2016E	2017E
Current assets								
Receivables, net		5,089.0	5,937.0	5,790.5	6,137.9	6,506.2	6,896.6	7,310.4
Days receivable			*4.4*	*4.4*	*4.4*	*4.4*	*4.4*	*4.4*

So, in cell G10, we can use the 41.4 days, hardcoding "41.4" as our future assumption, to

project the inventories. Remember we actually need to hardcode “41.4” into cell G10, copying Cell F10 to the right will eventually create an error.

2013 Inventories (Cell G9)

Excel Key Strokes	**Description**
type “=”	Begins the formula
select Cell G10	2013 Inventory Days
type “/360”	Divides by 360
type “*”	Multiplies
toggle over to the income statement and select Cell G14	2013 COGS
hit “Enter”	End
Formula Result	=G10/360*‘Income Statement’!G14

We can copy Cells G9 and G10 to the right. Now we repeat for “Prepaid expenses, ” relating them to the SG&A on the income statement.

Prepaid Expenses

$$\text{2013 Prepaid Epenses} = \frac{\text{2013 Days Prepaid}}{360} \times \text{2013 SG \& A}$$

So, in cell G12, we can use the 10.8 days, hardcoding them as our future assumption, to project the prepaid expenses.

2013 Prepaid Expenses (Cell G11)

Excel Key Strokes	**Description**
type “=”	Begins the formula
select Cell G12	2013 Days Prepaid
type “/360”	Divides by 360
type “*”	Multiplies
toggle over to the income statement and select Cell G19	2013 SG&A
hit “Enter”	End
Formula Result	=G12/360*‘Income Statement’!G19

We can copy Cells G11 and G12 to the right. We can also copy the total current assets Cell

F13, calculated earlier, over to the right to have our complete current asset projections. (See Table 4.7.)

TABLE 4.7 Walmart Projected Operating Working Capital Current Assets

Operating Working Capital Schedule (OWC)								
(in U.S.$ millions)	Actuals			Estimates				
On January 31	2010A	2011A	2012A	2013E	2014E	2015E	2016E	2017E
Current assets								
Receivables, net		5,089.0	5,937.0	5,790.5	6,137.9	6,506.2	6,896.6	7,310.4
Days receivable			*4.4*	*4.4*	*4.4*	*4.4*	*4.4*	*4.4*
Inventories		36,437.0	40,714.0	40,862.4	43,314.1	45,913.0	48,667.8	51,587.8
Inventory turnover days			*41.4*	*41.4*	*41.4*	*41.4*	*41.4*	*41.4*
Prepaid expenses and other		2,960.0	1,685.0	2,458.9	2,606.4	2,762.8	2,928.5	3,104.2
Days prepaid			*10.8*	*10.8*	*10.8*	*10.8*	*10.8*	*10.8*
Total current assets		44,486.0	48,336.0	49,111.7	52,058.4	55,182.0	58,492.9	62,002.4

Accounts Payable

We can now continue the process with the current liabilities, beginning with the accounts payable.

$$\text{2013 Accounts Payable} = \frac{\text{2013 Days Payable}}{360} \times \text{2013 COGS}$$

So, in cell G16, we can use the 37.8 days, hardcoding them as our future assumption.

2013 Accounts Payable (Cell G15)

Excel Key Strokes	**Description**
type "="	Begins the formula
select Cell G16	2013 Days Payable
type "/360"	Divides by 360
type "*"	Multiplies
toggle over to the income statement and select Cell G14	2013 COGS
hit "Enter"	End
Formula Result	= G16/360*'Income Statement'!G14

We can copy Cells G15 and G16 to the right.

Accrued Liabilities

For accrued liabilities, we hardcode 86.0 into Cell G18 and use the following formula:

$$2013\,\text{Accrued Liabilities} = \frac{2013\,\text{Days Payable}}{360} \times 2013\ \text{SG \& A}$$

2013 Accrued Liabilities (Cell G17)

Excel Key Strokes	**Description**
type "="	Begins the formula
select Cell G18	2013 Days Payable
type "/360"	Divides by 360
type "*"	Multiplies
toggle over to the income statement and select Cell G19	2013 SG&A
hit "Enter"	End
Formula Result	= G18/360*'Income Statement'!G19

We can copy Cells G17 and G18 to the right.

Accrued Income Taxes

For accrued income taxes, we hardcode the 29.9 into Cell G20 and use the following formula:

$$2013\ \text{Accrued Income Taxes} = \frac{2013\ \text{Days Payable}}{360} \times 2013\ \text{Income Tax Expense}$$

2013 Income Taxes (Cell G19)

Excel Key Strokes	**Description**
type "="	Begins the formula
select Cell G20	2013 Days Payable
type "/360"	Divides by 360
type "*"	Multiplies
toggle over to the income statement and select Cell G33	2013 Income Tax Expense
hit "Enter"	End
Formula Result	=G20/360*'Income Statement'!G33

We can copy Cells G19 and G20 to the right. We can also copy the total current liabilities

(Cell F21) and total operating working capital (Cell F22), calculated earlier, to the right through 2017 to get the operating working capital schedule. (See Table 4.8.)

OPERATING WORKING CAPITAL AND THE CASH FLOW STATEMENT

It is important to explain the relationship between operating working capital line items and cash flow line items. Remember: One of the reasons for creating an operating working capital schedule is to serve as a bridge between balance sheet items and cash flow items. Now that we have our operating working capital projections, we can link each of these line items into the operating working capital section of the cash flow statement (Cash Flow Statement Rows 13–16).

Let's first discuss this relationship between operating working capital and cash flow. If inventory increases from one year to the next, this results in a cash outflow. For example, if we had $0 in inventory in 2011, and in 2012 our inventory balance increases to $1, 000, we may have purchased inventory. If inventory is purchased, money is spent, so the cash flow relating to the inventory change is −$1, 000.The same rules apply to all current assets within operating working capital. (Remember that cash is not included in operating working capital.) If accounts receivable increases from year to year, this results in a cash outflow.

TABLE 4.8 Walmart Projected Operating Working Capital Schedule

Operating Working Capital Schedule (OWC)								
(in U.S.$ millions)	Actuals			Estimates				
On January 31	2010A	2011A	2012A	2013E	2014E	2015E	2016E	2017E
Current assets								
Receivables, net		5,089.0	5,937.0	5,790.5	6,137.9	6,506.2	6,896.6	7,310.4
Days receivable			*4.4*	*4.4*	*4.4*	*4.4*	*4.4*	*4.4*
Inventories		36,437.0	40,714.0	40,862.4	43,314.1	45,913.0	48,667.8	51,587.8
Inventory turnover days			*41.4*	*41.4*	*41.4*	*41.4*	*41.4*	*41.4*
Prepaid expenses and other		2,960.0	1,685.0	2,458.9	2,606.4	2,762.8	2,928.5	3,104.2
Days prepaid			*10.8*	*10.8*	*10.8*	*10.8*	*10.8*	*10.8*
Total current assets		**44,486.0**	**48,336.0**	**49,111.7**	**52,058.4**	**55,182.0**	**58,492.9**	**62,002.4**
Current liabilities								
Accounts payable		33,676.0	36,608.0	37,309.2	39,547.7	41,920.6	44,435.8	47,101.9
Days payable			*37.8*	*37.8*	*37.8*	*37.8*	*37.8*	*37.8*
Accrued liabilities		18,701.0	18,154.0	19,579.7	20,754.5	21,999.8	23,319.8	24,719.0
Days payable			*86.0*	*86.0*	*86.0*	*86.0*	*86.0*	*86.0*
Accrued taxes		157.0	1,164.0	764.4	807.8	853.9	902.8	954.6
Days payable			*29.9*	*29.9*	*29.9*	*29.9*	*29.9*	*29.9*
Total current liabilities		**52,534.0**	**55,926.0**	**57,653.3**	**61,110.1**	**64,774.3**	**68,658.4**	**72,775.5**
Total operating working capital		**(8,048.0)**	**(7,590.0)**	**(8,541.5)**	**(9,051.6)**	**(9,592.3)**	**(10,165.5)**	**(10,773.0)**

But, what happens if a current asset account would decrease from year to year? If we have $1, 500 in accounts receivable in 2011, for example, and that balance has reduced to $0 by 2012, we must have collected on our accounts receivable. In other words, if a customer who owed us money for a sale he or she made on credit pays us back, we have collected on those receivables. So, the receivables go down, and cash comes in. In this example, we have received cash of $1, 500 from the reduction in accounts receivable. Similarly, if our inventory has reduced from, say, $2, 000 in 2012 to $1, 500 in 2013, we can assume we have sold that inventory and cash is received.

Current assets increase† (+) Cash flow decreases (−)

Current assets decrease† (−) Cash flow increases (+)

†Note when referring to operating working capital current assets excludes cash. If cash as an asset would increase, then cash on the cash flow statement would certainly increase accordingly.

Current liabilities have the opposite effect on cash. Let's look at accrued liabilities, for example. If an accrued liability has increased from $1, 000 in 2011 to $2, 000 in 2012, this results in a positive cash flow. It's sort of hard to think through how an increase in a payable (an expense you have not yet paid) results in a positive cash flow line item, but remember that the cash flow from operations represents non-cash adjustments to the net income. So payables increasing from $1, 000 to $2, 000 mean we have more non-cash expenses that we should be adding back to net income. This "add back" is represented by a cash inflow. So an accounts payable account increasing from one year to the next results in a cash increase, or really cash being "added back" to the net income. Conversely, if the accrued liability account decreases, we have paid down that liability; cash decreases. If, for example the accounts payable account was $7, 500 in 2011 and is reduced to $0 in 2012, we have effectively paid off those expenses, resulting in a cash outflow of −$7, 500. An increase in current liabilities reflects an increase in cash and a decrease in current liabilities reflects a decrease in cash.

Current liabilities increase (+) Cash flow increases (+)
Current liabilities decrease (−)Cash flow decreases (−)

The cash flow statement operating working capital section refers to the cash flow impact based on the increase or decrease in each current asset and current liability from year to year. So we want to link the year-to-year changes of each working capital line item to the cash flow statement, taking care to properly adjust for the directional cash flows. Before we begin let's look at the total working capital. Row 23 of the operating working capital schedule ("Change in total operating working capital") represents the total change in operating working capital for each projected year. So in Cell G23, we can subtract the 2012 total operating working capital from the 2013 total operating working capital, or type "=, " select Cell G22, type "−, " and select Cell F22. We can copy this formula to the right. This is showing that the operating working capital is decreasing from year to year.

Since operating working capital is defined as current assets (not including cash) less current liabilities (not including debts), it can be thought of as a net asset. So, total operating working capital acts like an asset in that if it is increasing from year to year, it represents a cash outflow, and if it is decreasing, it represents a positive cash flow. If Walmart's projected operating working capital is decreasing from year to year, we should see total changes in cash from working capital on the cash flow statement as positive.

The match formula in Row 24 is one of several checks we will see throughout the model. It may read "N" right now, as we have not yet properly linked the operating working capital line items to the cash flow statement. Once done properly, the match should read "Y." The match checks to make sure the total operating working capital changes (Row 23) matches the operating working capital changes in the cash flow statement (cash flow statement row 17). In the cash flow statement, we will subtract each individual line item making up working capital and then total the changes. So, we are effectively calculating the same working capital in two different ways. This helps ensure we have our flows moving in the right direction. See the following graphic.

Changes in Accounts Receivable

Let's link each operating working capital line item to the cash flow statement beginning with the receivables. On the cash flow statement, Row 13 ("Changes in accounts receivable") represents "Net receivables, " so we clearly want to link this in from the "Net receivables" row in the operating working capital schedule. However, on the cash flow statement we want to show the year-to-year change, representing a proper inflow or outflow, depending on whether the item is an asset or a liability. We see that receivables in the operating working capital schedule have decreased from 2012 to 2013. This should be represented as a cash inflow on the cash flow

statement. So when we link the receivables from the operating working capital to the cash flow statement, we should link the "negative" changes from 2012 to 2013, or Cash Flow Changes in Accounts Receivable = – (2013 Receivables – 2012 Receivables).

2013 Changes in Accounts Receivable (Cash Flow Cell G13)

Excel Key Strokes	Description
type "="	Begins the formula
type "–("	Prepares to calculate the "Negative" change
select Operating Working Capital Cell G7	2013 Receivables
type "–"	Subtracts
select Operating Working Capital Cell F7	2012 Receivables
type ")"	Closes the parentheses
hit "Enter"	End
Formula Result	=-('Operating Working Capital'!G7- 'Operating Working Capital'! F7)

We can copy this formula to the right through 2017.

Inventories

Every current asset within the operating working capital works the same way'that is, we want to pull the "negative" change into the cash flow statement because of the relationship between current assets in the operating working capital and their effect on cash. Because inventory is also increasing year over year, we should expect to see a cash outflow in the "inventories" line item in the cash flow statement.

2013 Changes in Inventory (Cash Flow Cell G14)

Excel Key Strokes	Description
type "="	Begins the formula
type "–("	Prepares to calculate the "Negative" change
select Operating Working	2013 Inventories

Capital Cell G9	
type “—”	Subtracts
select Operating Working Capital Cell F9	2012 Inventories
type “)”	Closes the parentheses
hit “Enter”	End
Formula Result	=-(‘Operating Working Capital’!G9-‘Operating Working Capital’!F9)

We can copy this formula to the right through 2017.

Prepaid Expenses

Prepaid expenses are unfortunately not clearly identified as a separate line item in the cash flow statement. This happens quite often and is typically due to differences in classification between line items in the cash flow statement and line items in the balance sheet. It is quite unsatisfying, but further research does not get us to a specific identification of exactly how prepaid expenses are allocated in the cash flow statement. Performing a word search gives us some clues, but again it is not entirely clear. This is further an unfortunate reality when comparing many historical line items between the cash flow statement and balance sheet. Unless we can actually speak to the finance professional that has created these reports for further detail, we will most likely not be able to get an answer.

One may notice the cash flow statement section in question here is “Changes in certain assets and liabilities, net of effects of acquisitions.” Although this is often thought of as working capital, it is important to note this may not exactly be our definition of operating working capital. Although it is implied that these line item are operating due to the fact that we are within the operating cash flow section, the cash flow statement does not specify that the assets and liabilities in this section are actually current. Again, a good analyst will identify and re-allocate so that proper operating working capital is identified in our projections for purposes of building a discounted cash flow analysis in valuation.

So, we can either assume the prepaid expenses defined in the balance sheet is already contained in other areas of the cash flows and therefore leave it out of our projections, or we can assume that, to better represent operating working capital on the cash flow, our projections should include prepaid expenses. There’s good argument for both sides. We prefer the approach of better representing operating working capital, so let’s include a new line in the cash flow statement that identifies working capital. This value will be zero historically, but we will link up the changes from the working capital schedule as we have done the revenue and inventory. Let’s add a row above Row 15 in the cash flow statement by holding down “Shift” and hitting the space bar. This highlights the row. Let go of those keys, and hit “Ctrl” and “+” at the same time (you may have to type “Ctrl” + “Shift” + “=” if you do not have a single “+” key, because “Shift” + “=” is the same as a “+”). This will add a row, which we can now call “changes in prepaid expenses and other” and make the historical values “0.” For 2013, we can now calculate the changes.

2013 Changes in Prepaid Expenses (Cash Flow Cell G15)	
Excel Key Strokes	**Description**

type “=”	Begins the formula
type “−(”	Prepares to calculate the “Negative” change
select Operating Working Capital Cell G11	2013 Prepaid Expenses
type “−”	Subtracts
select Operating Working Capital Cell F11	2012 Prepaid Expenses
type “)”	Closes the parenthesis
hit “Enter”	End
Formula Result	=-(‘Operating Working Capital’!G11 − ‘Operating Working Capital’!F11)

We can copy this formula to the right. (See Table 4.9.)

TABLE 4.9 Walmart Cash Flow Changes in Current Assets

Consolidated Statements of Cash Flows (in U.S.$ millions)	Actuals			Estimates				
Period Ending January 31	2010A	2011A	2012A	2013E	2014E	2015E	2016E	2017E
Cash flows from operating activities								
Net income	14,883.0	16,993.0	16,387.0	18,685.2	19,748.0	20,874.5	22,068.5	23,334.3
Loss (income) from discontinued operations	79.0	(1,034.0)	67.0	0.0	0.0	0.0	0.0	0.0
Depreciation and amortization	7,157.0	7,641.0	8,130.0	8,591.7	9,194.3	9,833.1	10,510.2	11,227.9
Deferred income taxes	(504.0)	651.0	1,050.0	715.9	1,004.7	796.2	609.9	439.2
Other Operating Activities	318.0	1,087.0	398.0	318.0	318.0	318.0	318.0	318.0
Changes in operating working capital								
Changes in accounts receivable	(297.0)	(733.0)	(796.0)	146.5	(347.4)	(368.3)	(390.4)	(413.8)
Changes in inventory	2,213.0	(3,205.0)	(3,727.0)	(148.4)	(2,451.7)	(2,598.8)	(2,754.8)	(2,920.1)
Changes in prepaid expenses and other	0.0	0.0	0.0	(773.9)	(147.5)	(156.4)	(165.8)	(175.7)
Changes in accounts payable	1,052.0	2,676.0	2,687.0					
Changes in accrued liabilities	1,348.0	(433.0)	59.0					
Net changes in operating working capital	**4,316.0**	**(1,695.0)**	**(1,777.0)**	(775.7)	(2,946.7)	(3,123.5)	(3,310.9)	(3,509.6)
Total cash flows from operating activities	**26,249.0**	**23,643.0**	**24,255.0**	**27,535.1**	**27,318.3**	**28,698.2**	**30,195.7**	**31,809.9**

Changes in Accounts Payable

For current liabilities, remember that an increase from year to year represents a cash inflow. So:

2013 Changes in Accounts Payable = 2013 Working Capital Accounts Payable – 2012 Working Capital Accounts Payable

In other words this is a direct subtraction, no "-" as we had done with the current assets.

2013 Changes in Accounts Payable (Cash Flow Cell G16)

Excel Key Strokes	**Description**
type "="	Begins the formula
select Operating Working Capital Cell G15	2013 Accounts Payable
type "–"	Subtracts
select Operating Working Capital Cell F15	2012 Accounts Payable
hit "Enter"	End
Formula Result	='Operating Working Capital'!G15–'Operating Working Capital'!F15

This formula can be copied to the right through 2017.

Changes in Accrued Liabilities

We can repeat the process for accrued liabilities.

2013 Changes in Accrued Liabilities (Cash Flow Cell G17)

Excel Key Strokes	**Description**
type "="	Begins the formula
select Operating Working Capital Cell G17	2013 Accrued Liabilities
type "–"	Subtracts
select Operating Working Capital Cell F17	2012 Accrued Liabilities
hit "Enter"	End
Formula Result	='Operating Working Capital'!G17-'Operating Working Capital'!F17

This formula can be copied to the right through 2017.

Changes in Accrued Income Taxes

Accrued income taxes is another line item that exists in the balance sheet but not the cash flow statement. Again we can either assume the accrued income taxes defined in the balance sheet is already contained in other areas of the cash flows and therefore leave it out of our projections, or we can assume that, to better represent operating working capital on the cash flow, our projections should include accrued income taxes. As we prefer the approach of better representing operating working capital, let's include a new line in the cash flow statement that identifies working capital. This value will be zero historically, but we will link up the changes from the operating working capital schedule as we have done the other operating working capital line items. Let's add a row above Row 18 by holding down "Shift" and hitting the space bar. This highlights Row 18. Let go of those keys, and hit "Ctrl" and "+" (or "Ctrl" + "Shift" + "=") at the same time. We can now call this new row "changes in accrued income taxes" and make the historical values "0."

We can now link the accrued income taxes.

2013 Changes in Accrued Income Taxes (Cash Flow Cell G18)	
Excel Key Strokes	**Description**
type "="	Begins the formula
select Operating Working Capital Cell G19	2013 Accrued Income Taxes
type "-"	Subtracts
select Operating Working Capital Cell F19	2012 Accrued Income Taxes
hit "Enter"	End
Formula Result	='Operating Working Capital'!G19-'Operating Working Capital'!F19

We can copy this formula to the right. Since we have added a few rows, double check to make sure both the net changes in operating working capital and the total cash flows from operating activities rows are properly totaling all of the previous line items including the new rows. The net changes in operating capital should be totaling Rows 13 through 18, and the total cash flows from operating activities should be totaling Rows 7 through 18. (See Table 4.10.)

TABLE 4.10 Walmart Projected Consolidated Statements of Cash Flows

Consolidated Statements of Cash Flows								
(in U.S.$ millions)	Actuals			Estimates				
Period Ending January 31	**2010A**	**2011A**	**2012A**	**2013E**	**2014E**	**2015E**	**2016E**	**2017E**
Cash flows from operating activities								
Net income	14,883.0	16,993.0	16,387.0	18,685.2	19,748.0	20,874.5	22,068.5	23,334.3
Loss (income) from discontinued operations	79.0	(1,034.0)	67.0	0.0	0.0	0.0	0.0	0.0
Depreciation and amortization	7,157.0	7,641.0	8,130.0	8,591.7	9,194.3	9,833.1	10,510.2	11,227.9
Deferred income taxes	(504.0)	651.0	1,050.0	715.9	1,004.7	796.2	609.9	439.2
Other operating activities	318.0	1,087.0	398.0	318.0	318.0	318.0	318.0	318.0
Changes in operating working capital								
Changes in accounts receivable	(297.0)	(733.0)	(796.0)	146.5	(347.4)	(368.3)	(390.4)	(413.8)
Changes in inventory	2,213.0	(3,205.0)	(3,727.0)	(148.4)	(2,451.7)	(2,598.8)	(2,754.8)	(2,920.1)
Changes in prepaid expenses and other	0.0	0.0	0.0	(773.9)	(147.5)	(156.4)	(165.8)	(175.7)
Changes in accounts payable	1,052.0	2,676.0	2,687.0	701.2	2,238.5	2,372.9	2,515.2	2,666.1
Changes in accrued liabilities	1,348.0	(433.0)	59.0	1,425.7	1,174.8	1,245.3	1,320.0	1,399.2
Changes in accrued income taxes	0.0	0.0	0.0	(399.6)	43.5	46.1	48.8	51.8
Net changes in operating working capital	**4,316.0**	**(1,695.0)**	**(1,777.0)**	**951.5**	**510.1**	**540.7**	**573.2**	**607.5**
Total cash flows from operating activities	**26,249.0**	**23,643.0**	**24,255.0**	**29,262.3**	**30,775.1**	**32,362.4**	**34,079.8**	**35,927.0**
Cash flows from investing activities								
Payments for property and equipment (CAPEX)	(12,184.0)	(12,699.0)	(13,510.0)	(14,213.0)	(15,065.8)	(15,969.7)	(16,927.9)	(17,943.6)
CAPEX % of revenue	3.0%	3.0%	3.0%	3.0%	3.0%	3.0%	3.0%	3.0%
Proceeds from disposal of property and equipment	1,002.0	489.0	580.0	0.0	0.0	0.0	0.0	0.0

	Actuals			Estimates				
Period Ending January 31	2010A	2011A	2012A	2013E	2014E	2015E	2016E	2017E
Investments and business acquisitions, net of cash acquired	0.0	(202.0)	(3,548.0)	0.0	0.0	0.0	0.0	0.0
Other investing activities	(438.0)	219.0	(131.0)	(438.0)	219.0	(131.0)	(438.0)	219.0
Total cash from investing activities	**(11,620.0)**	**(12,193.0)**	**(16,609.0)**	**(14,651.0)**	**(14,846.8)**	**(16,100.7)**	**(17,365.9)**	**(17,724.6)**
Cash flows from financing activities								
Short-term borrowings (repayments)	(1,033.0)	503.0	3,019.0					
Long-term borrowings (repayments)	(487.0)	7,316.0	466.0					
Dividends paid	(4,217.0)	(4,437.0)	(5,048.0)	(5,344.7)	(5,187.3)	(5,029.9)	(4,872.5)	(4,715.1)
Dividends paid ($/ share)				*$1.59*	*$1.59*	*$1.59*	*$1.59*	*$1.59*
Purchase of common stock [treasury stock]	(7,276.0)	(14,776.0)	(6,298.0)	(7,308.2)	(7,308.2)	(7,308.2)	(7,308.2)	(7,308.2)
Purchase of redeemable noncontrolling interest	(436.0)	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Capital lease obligations	(346.0)	(363.0)	(355.0)					
Other	(396.0)	(271.0)	(242.0)	(242.0)	(242.0)	(242.0)	(242.0)	(242.0)
Total cash from financing activities	**(14,191.0)**	**(12,028.0)**	**(8,458.0)**	**(12,894.9)**	**(12,737.5)**	**(12,580.1)**	**(12,422.6)**	**(12,265.2)**
Effect of exchange rate on cash	194.0	66.0	(33.0)	194.0	66.0	(33.0)	194.0	66.0
Total change in cash and cash equivalents	**632.0**	**(512.0)**	**(845.0)**	**1,910.5**	**3,256.8**	**3,648.7**	**4,485.2**	**6,003.1**
SUPPLEMENTAL DATA:								
Cash flow before debt paydown								

We notice now the "match" Row 24 in the operating working capital schedule should now read "Y." Again, this is a check to ensure we are properly linking each year-to-year operating working capital line item change in the cash flow statement. It is easy to confuse the direction of flows when linking from the operating working capital into the cash flow statement. Having this check can help avoid that potential issue. We are now done with the working capital schedule and can continue to the last major schedule: the balance sheet.

Note that we could have taken the formula a step further and re-adjusted for the "Average (2013 Receivables, 2012 Receivables)" component. However, for standard projections, the days we choose as our driver should technically be a representation of average and standard indicators. So adjusting for the average can be considered over-

engineering the analysis. However, there are some advanced analyses (for example, backing into management's projections), where using the following formula is the only way to back into the exact metrics. So, for reference, we have done the analysis here.

First we convert the "average" formula into mathematical operations:

$$\frac{2013\ \text{Days Receivable}}{360} \times 2013\ \text{Revenue} = \frac{(2013\ \text{Receivables} + 2012\ \text{Receivables})}{2}$$

We can multiply both sides of the equation by 2 to get:

$$\left\{\frac{2013\ \text{Days Receivable}}{360} \times 2013\ \text{Revenue}\right\} \times 2 = (2013\ \text{Receivables} + 2012\ \text{Receivables})$$

And we can subtract the 2012 Receivables from both sides of the equation:

$$2013\ \text{Receivables} = \left\{\frac{2013\ \text{Day Receivable}}{360} \times 2013\ \text{Revenue}\right\} \times 2 - 2012\ \text{Receivables}$$

Operating Working Capital	2011	2012
Accounts Receivable	20,000.0	25,000.0
Inventory	5,000.0	7,500.0
Prepaid Expenses	1,250.0	1,000.0
Accounts Payable	10,000.0	12,500.0
Accrued Expenses	12,500.0	15,000.0
Net Working Capital	**3,750.0**	**6,000.0**
Changes in Net Working Capital		**2,250.0**

Cash Flow	2012
Accounts Receivable	(5,000.0)
Inventory	(2,500.0)
Prepaid Expenses	250.0
Accounts Payable	2,500.0
Accrued Expenses	2,500.0
Total Working Capital	**(2,250.0)**

Identifying Proper Working Capital Line Items between the Cash Flow and Balance Sheet

It happens quite often that the line items we have identified as operating working capital as per the balance sheet does not exactly match the line items

within the operating cash flow section in the cash flow statement. Our suggestion is to add rows as appropriate to properly include all working capital items in the cash flow statement for valuation purposes. Another approach is to consolidate like balance sheet items that may both be reflected in one cash flow working capital line item. We prefer in this case the former approach.

CHAPTER 5

The Balance Sheet

The balance sheet is a measure of a company's financial position at a specific point in time. The balance sheet's performance is broken up into three major categories: assets, liabilities, and shareholders' equity, where the company's total value of assets must always equal the sum of its liabilities or shareholders' equity.

$$\text{Assets} = \text{Liabilities} + \text{Shareholders' Equity}$$

ASSETS

An asset is a resource held to produce some economic benefit. Examples of assets are cash, inventory, accounts receivable, and property. Assets are separated into two categories: current assets and non-current assets.

Current Assets

A current asset is an asset whose economic benefit is expected to come within one year. Examples of common current assets are:

Cash and Cash Equivalents

Cash is currency on hand. Cash equivalents are assets that are readily convertible into cash, such as money market holdings, short-term government bonds or Treasury bills, marketable securities, and commercial paper. Cash equivalents are often considered as cash because they can be easily liquidated when necessary.

Accounts Receivable

Accounts receivable (AR) is a sale made on credit. The revenue for the sale has been recognized, but the customer did not pay for the sale in cash. An asset is recorded for the amount of the sale and remains until the customer has paid. If AR increases by $100, for example, then we must have booked a sale. So, revenue increases by $100.

Income Statement	
Revenue	100.0
Taxes (@ 40%)	(40.0)
Net Income	**60.0**

The resulting net income increase of $60 flows to the cash flow statement. We then need to remove the $100 in AR, as an increase in AR of $100 results in a cash outflow of $100. Combined with the net income increase of $60, we have a total cash change of –$40.

Cash Flow	
Net Income	60.0
Changes in Accounts Receivable	(100.0)
Total Changes in Cash	**(40.0)**

Balance Sheet	
Cash	(40.0)
Accounts Receivable	100.0
Retained Earnings (Net Income)	60.0

In the balance sheet, cash is reduced by $40, AR increases by $100, and retained earnings increases by $60. Note the relationship between the changes in accounts receivable on the cash flow statement and accounts receivable on the balance sheet: cash down, asset up. The balance sheet balances; total assets (–$40 + $100 = $60) less liabilities (0) equals retained earnings ($60).

When the customer finally pays, cash is received and the AR on the balance sheet is removed.

Cash Flow	
Net Income	**0.0**
Changes in Accounts Receivable	100.0
Total Changes in Cash	**100.0**

Balance Sheet	
Cash	100.0
Accounts Receivable	(100.0)
Retained Earnings (Net Income)	0.0

Inventory

Inventory is the raw materials and goods that are ready for sale. When raw materials are acquired, inventory is increased by the amount of material purchased. Once goods are sold and recorded as revenue, the value of the inventory is reduced and a cost of goods sold expense (COGS) is recorded. Let's say, for example, we are selling chairs.

If inventory increases by $50, then we have most likely purchased inventory, resulting in a cash outflow. Cash reduces by $50 and an inventory asset is created. Note the relationship between the changes in inventory on the cash flow statement and inventory on the balance sheet: cash down, asset up.

Cash Flow	
Net Income	**0.0**
Changes in Inventory	(50.0)
Total Changes in Cash	**(50.0)**

Balance Sheet	
Cash	(50.0)
Inventory	50.0
Retained Earnings (Net Income)	0.0

If inventory decreases by $50, it is most likely related to a sale of that inventory, which is expensed as COGS. Note the additional expense affects taxes and the resulting Net Income is –$30.

An asset sold results in a cash increase; when added to the –$30 of net income, it gives us a total $20 change in cash.

Income Statement	
COGS	(50.0)
Taxes (@ 40%)	20.0
Net Income	**(30.0)**

Cash Flow	
Net Income	**(30.0)**
Changes in Inventory	50.0
Total Changes in Cash	**20.0**

Balance Sheet	
Cash	20.0
Inventory	(50.0)
Retained Earnings (Net Income)	(30.0)

Inventory is removed. Net income affects retained earnings. The balance sheet balances; total assets ($20 − $50 = –$30) less liabilities (0) equals retained earnings (–$30).

Prepaid Expense

Prepaid expense is an asset created when a company pays for an expense in advance of when it is billed or incurred. Let's say we decide to prepay rent expense by $100. Cash goes into a prepaid expense account. Note the relationship between the changes in prepaid expense on the cash flow statement and prepaid expense on the balance sheet: cash down, asset up.

Cash Flow	
Net Income	**0.0**
Changes in Prepaid Expense	(100.0)
Total Changes in Cash	**(100.0)**

Balance Sheet	
Cash	(100.0)
Prepaid Expense	100.0
Retained Earnings (Net Income)	0.0

When the expense is actually incurred, it is then expensed in the SG&A account; after tax we get –$60 in net income.

Income Statement	
SG&A	(100.0)
Taxes (@ 40%)	40.0
Net Income	**(60.0)**

The –$60 in net income flows into retained earnings on the balance sheet. The prepaid expense asset reduces, causing a changes in prepaid expense inflow.

Cash Flow	
Net Income	(60.0)
Changes in Prepaid Expense	100.0
Total Changes in Cash	**40.0**

Balance Sheet	
Cash	40.0
Prepaid Expense	(100.0)
Retained Earnings (Net Income)	(60.0)

The balance sheet balances as the total Assets (40 − 100 = –60) less liabilities (0) equals shareholders' equity (–60).

Non-Current Assets

Non-current assets are not expected to be converted into cash within one year. Some examples of non-current assets are:

Property, Plant, and Equipment (PP&E)

PP&E are assets purchased in order to further the company's operations. Also known as "fixed assets, " examples of property, plant, and equipment (PP&E) are buildings, factories, and machinery.

Intangible Assets

An intangible asset is an asset that cannot be physically touched. Intellectual property, such as patents, trademarks, and copyrights, goodwill, and brand recognition are all examples intangible assets.

LIABILITIES

A liability is any debt or financial obligation of a company. There are current liabilities and non-current liabilities.

Current Liabilities

Current liabilities are company debts or obligations that are owed within one year. Some examples of current liabilities are:

Accounts Payable

Accounts payable is an obligation owed to a company's suppliers. If a company, for example, purchases $500 in raw materials from its supplier on credit, the company incurs a $500 account payable. The company increases the accounts payable by $500 until they pay the supplier.

Once the supplier is paid, the accounts payable reduces by $500, and cash on the balance sheet goes down by $500. Note the relationship between the changes in accounts payable on the cash flow statement and accounts payable on the balance sheet: cash up, liability up.

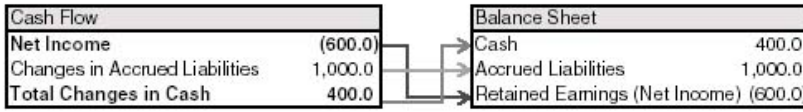
Accrued Liabilities

Accrued liabilities are expenses that have been incurred but have not yet been paid. If a company receives a utility bill of $1, 000, for example, which is expensed under SG&A, an accrued liabilities account is also recorded for $1, 000 in the balance sheet.

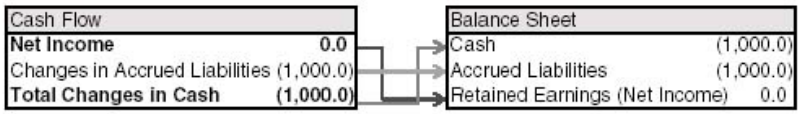
Income Statement	
SG&A	(1,000.0)
Taxes (@ 40%)	400.0
Net Income	**(600.0)**

After taxes, the net income affect is –$600, which flows to cash flow. Note the relationship between the changes in accrued liabilities on the cash flow statement and accrued liabilities on the

balance sheet: cash up, liability up.



One the bill has been paid, the accrued liabilities reduces, and cash in the balance sheet goes down by $1, 000.



Short-Term Debts

Short-term debts are debts that come due within one year.

Non-Current Liabilities

Non-current liabilities are company debts or obligations due beyond one year. Some examples of non-current liabilities are:

Long-Term Debts

Long-term debts are debts due beyond one year.

Deferred Taxes

Deferred taxes result from timing differences between net income recorded for generally accepted accounting principles (GAAP) and net income recorded for tax purposes. Deferred taxes can act as a liability or an asset. (See the “Deferred Taxes” section in Chapter 3.)

Now may be a good time to review the example introduced in Chapter 2, “Financial Statement Flows Example.” It was important to introduce the example early in the book so you can get a general idea of the impact of a sale in all the three statements. But now you should have a more complete understanding of the line item flows.

WALMART’S BALANCE SHEET

We should now hardcode in the historical numbers for Walmart. Walmart’s balance sheet line items can be listed as the company has done. There will be a few adjustments we will make here, but we should go through them line-by-line. We use Walmart’s balance sheet found on page 33 of the Walmart Annual Report. (See Figure 5.1.) Please refer to the “Balance Sheet” tab in the model.

Current Assets

"Cash and cash equivalents, " "Receivables, net, " "Inventories, " and "Prepaid expenses and other" we can hardcode in. We have already hardcoded all of these line items except for cash when we discussed the working capital section. We can enter the $7, 395 and the $6, 550 for the 2011 and 2012 cash, respectively. "Current assets of discontinued operations" is slightly unusual. Given that they are related to discontinued operations, we can assume they will not be a major recurring factor to the balance sheet. Unfortunately, additional research does not reveal too much about this line item. Either way, we should sill list this as $131 and $89 in 2011 and 2012, respectively.

We can easily total up the historical current assets in cell E13 as "=SUM(E8:E12)." We can copy this formula to the right. (See Table 5.1.)

Non-Current Assets

The first line in the non-current assets section is property and equipment. You may often see the PP&E line items separated from the "accumulated depreciation" line items as Walmart has done here. Let's just focus on the "net" number. Although the additional detail is good to have, we do not recommend having those items broken out within the balance sheet. You will later see that it will disturb the flow when making projections. If you feel it is necessary, you may want to have a separate schedule separating out the gross PP&E from the accumulated depreciation on another tab. We have also discussed in Chapter 3 combining this number with the property under capital lease. A capital lease is a lease of property that represents ownership of that property so is listed as an asset on the balance sheet. Much like depreciation of PP&E, the property held under the capital lease is amortized. Again, like in the PP&E section, let's just focus on the "net" value here. We have already hardcoded in the combined 2012 values into Cell F14. Let's do the same for 2011, which will be $105, 098 plus $2, 780.

FIGURE 5.1 Walmart Balance Sheet

(Amounts in millions except per share data)	As of January 31, 2012	2011
ASSETS		
Current assets:		
Cash and cash equivalents	$ 6,550	$ 7,395
Receivables, net	5,937	5,089
Inventories	40,714	36,437
Prepaid expenses and other	1,685	2,960
Current assets of discontinued operations	89	131
Total current assets	54,975	52,012
Property and equipment:		
Property and equipment	155,002	148,584
Less accumulated depreciation	(45,399)	(43,486)
Property and equipment, net	109,603	105,098
Property under capital lease:		
Property under capital lease	5,936	5,905
Less accumulated amortization	(3,215)	(3,125)
Property under capital lease, net	2,721	2,780
Goodwill	20,651	16,763
Other assets and deferred charges	5,456	4,129
Total assets	$193,406	$180,782
LIABILITIES AND EQUITY		
Current liabilities:		
Short-term borrowings	$ 4,047	$ 1,031
Accounts payable	36,608	33,676
Accrued liabilities	18,154	18,701
Accrued income taxes	1,164	157
Long-term debt due within one year	1,975	4,655
Obligations under capital leases due within one year	326	336
Current liabilities of discontinued operations	26	47
Total current liabilities	62,300	58,603
Long-term debt	44,070	40,692
Long-term obligations under capital leases	3,009	3,150
Deferred income taxes and other	7,862	6,682
Redeemable noncontrolling interest	404	408
Commitments and contingencies		
Equity:		
Preferred stock ($0.10 par value; 100 shares authorized, none issued)	—	—
Common stock ($0.10 par value; 11,000 shares authorized, 3,418 and 3,516 issued and outstanding at January 31, 2012 and 2011, respectively)	342	352
Capital in excess of par value	3,692	3,577
Retained earnings	68,691	63,967
Accumulated other comprehensive income (loss)	(1,410)	646
Total Walmart shareholders' equity	71,315	68,542
Noncontrolling interest	4,446	2,705
Total equity	75,761	71,247
Total liabilities and equity	$193,406	$180,782

See accompanying notes.

TABLE 5.1 Walmart Historical Current Assets

Consolidated Balance Sheets (in U.S.$ millions)			
		Actuals	
On January 31	2010A	2011A	2012A
Assets			
Current assets:			
Cash and cash equivalents		7,395.0	6,550.0
Receivables, net		5,089.0	5,937.0
Inventories		36,437.0	40,714.0
Prepaid expenses and other		2,960.0	1,685.0
Other current assets (discontinued operations)		131.0	89.0
Total current assets		**52,012.0**	**54,975.0**

Goodwill

Goodwill is an intangible asset that typically arises as a result of an acquisition. Let's list this as a separate item. So we can hardcode $16, 763 and $20, 651 into 2011 and 2012, respectively.

Other Assets and Deferred Charges

Other assets and deferred charges we can also hardcode in. Although it is not 100 percent clear what this line item is made up of, further research does mention it may consist of intangible assets. Page 37 of the 2012 Walmart annual report says:

> *Indefinite-lived intangible assets are included in other assets and deferred charges in the Company's Consolidated Balance Sheets.*

So, we can hardcode the $4, 129 and $5, 456 into 2011 and 2012, respectively. We can then total the asset section of the balance sheet. In Cell 17 we should have "=SUM(E13:E16)." This can be copied to the right to get what is shown in Table 5.2.

Current Liabilities

We can now continue listing the historical Walmart values for liabilities.

For short-term borrowings, we should hardcode the $1, 031 and $4, 047 in 2011 and 2012 as given in the Walmart annual report. The accounts payable, accrued liabilities, and accrued income taxes items we have already hardcoded when building the operating working capital schedule.

TABLE 5.2 Walmart Historical Total Assets

Consolidated Balance Sheets (in U.S.$ millions)	Actuals		
On January 31	2010A	2011A	2012A
Assets			
Current assets:			
Cash and cash equivalents		7,395.0	6,550.0
Receivables, net		5,089.0	5,937.0
Inventories		36,437.0	40,714.0
Prepaid expenses and other		2,960.0	1,685.0
Other current assets (discontinued operations)		131.0	89.0
Total current assets		**52,012.0**	**54,975.0**
Property, plant and equipment, net		107,878.0	112,324.0
Goodwill		16,763.0	20,651.0
Other assets and deferred charges		4,129.0	5,456.0
Total assets		**180,782.0**	**193,406.0**

Long-term debt obligations due within one year are the portions of the long-term debts that need to be paid this year. Similarly, obligations under capital leases due within one year is the portion of current obligations due within one year. Finally we have the current liabilities of discontinued operations. Given that they are related to discontinued operations, we can assume they will not be a major recurring factor to the balance sheet, but we should still create a separate line item for this. We can list each of these line items as Walmart has done, then total up current liabilities in Cell E27 as "=SUM(E20:E26)." (See Table 5.3.)

Non-Current Liabilities

Long-term debt and the long-term debt under capital leases line items should be listed as Walmart has done. We will discuss managing these debts and obligations in the debt schedule section.

Deferred Taxes

We will also list the deferred taxes and other line, which we discussed in the "Deferred Taxes" section in Chapter 3. Note as a reminder that the Modified Accelerated Cost Recovery System (MACRS) method we used earlier in the book to arrive at our deferred taxes is not exactly Walmart's methodology.

TABLE 5.3 Walmart Historical Current Liabilities

Consolidated Balance Sheets (in U.S.$ millions)	Actuals		
On January 31	2010A	2011A	2012A
Liabilities			
Current liabilities:			
Short-term borrowings		1,031.0	4,047.0
Accounts payable		33,676.0	36,608.0
Accrued liabilities		18,701.0	18,154.0
Accrued income taxes		157.0	1,164.0
Long term debt due within one year		4,655.0	1,975.0
Obligations under capital leases due within one year		336.0	326.0
Current liabilities of discontinued operations		47.0	26.0
Total current liabilities		**58,603.0**	**62,300.0**

Walmart is vague about the exact methods utilized to arrive at its deferred taxes. As we did in Chapter 3, research on deferred taxes revealed the detailed note and table found on page 48 of the Walmart annual report, shown in Figure 5.2.

As noted further here, Walmart's deferred taxes are quite complex. The company has various deferred tax assets based on tax credits among other items. It also has various categories of deferred tax liabilities. Not unlike many large Fortune 500 companies, it is very difficult to project each deferred tax asset and liability section accurately, especially given the vagueness of the methodology. When looking at how the deferred taxes affect the balance sheet line items in Figure 5.2, we note they affect the following line items: "Prepaid expenses and other, " "Other assets and deferred charges, " "Accrued liabilities, " and "Deferred income taxed and other." With little detailed information on the exact deferred tax methods, we can only go with making broad assumptions. Therefore our goal in the deferred tax section in Chapter 3 was to make sure one had the broad conceptual understanding of how deferred taxes work. We chose the MACRS method, as it is the most common in the United States, and it was important for instructional purposes. Given no further granularity in the notes, let's keep this method for now.

FIGURE 5.2 Walmart Deferred Taxes

(Amounts in millions)	January 31, 2012	2011
Deferred tax assets:		
Loss and tax credit carryforwards	**$ 2,996**	$ 2,968
Accrued liabilities	**2,949**	3,532
Share-based compensation	**376**	332
Other	**1,029**	708
Total deferred tax assets	**7,350**	7,540
Valuation allowance	**(2,528)**	(2,899)
Deferred tax assets, net of valuation allowance	**$ 4,822**	$ 4,641
Deferred tax liabilities:		
Property and equipment	**$ 5,891**	$ 4,848
Inventories	**1,627**	1,014
Other	**409**	474
Total deferred tax liabilities	**7,927**	6,336
Net deferred tax liabilities	**$ 3,105**	$ 1,695

Redeemable Non-Controlling Interest

To explain redeemable non-controlling interest, it is first important to explain exactly what non-controlling interest is. From page 57 of Price Waterhouse Coopers' "A Global Guide to Accounting for Business Combinations and Non-Controlling Interests":

> *The noncontrolling interest is the portion of equity (net assets) in a subsidiary not attributable, directly or indirectly, to a parent [ASC 810-10-45-15; IAS 27R.4]. Only financial instruments issued by a subsidiary that are classified as equity in the subsidiary's financial statements for financial reporting purposes can be noncontrolling interest in the consolidated financial statements [ASC 810-10-45-17]. A financial instrument that a subsidiary classifies as a liability is not a noncontrolling interest in the consolidated financial statements. However, not all financial instruments that are issued by a subsidiary and classified as equity will be recognized as a noncontrolling interest within equity in consolidation. For example, certain preferred stock, warrants, puts, calls, and options may not form part of noncontrolling interest within equity in consolidation by the parent company. For more information on the guidance to determine whether such instruments are considered noncontrolling interests in consolidation, see BCG 6.2.*

In other words, this is a portion of the company's subsidiary that is not owned by the company itself. For example, if a Company A acquires 75 percent of Company B, Company A must consolidate all of Company B's financials into

Company A (because Company A had acquired greater than 50 percent of Company B). But the 25 percent of Company B that Company A does not own is recorded separately on Company A's balance sheet as non-controlling interest. According to GAAP rules this is recorded in the equity section of the balance sheet. Further, 25 percent of Company B's net income is reported as non-controlling interest on the income statement for distribution to the owner of the 25 percent stake of Company B. Let's look at the following example.

Income Statement - Company A	
Revenue	10,000.0
Expenses	(7,000.0)
Taxes (@ 40%)	(1,200.0)
Net Income	1,800.0

Income Statement - Company B	
Revenue	1,500.0
Expenses	(250.0)
Taxes (@ 40%)	(500.0)
Net Income	750.0

After the 75 percent acquisition, Company A will fully consolidate with Company B, showing a total net income of $2, 550, which is Company A's net income of $1, 800 plus Company B's net income of $750. However, at the bottom of the income statement, the portion of Company B's net income that Company A does not own is removed (25% × $750).

Income Statement - Company A + B	
Revenue	11,500.0
Expenses	(7,250.0)
Taxes (@ 40%)	(1,700.0)
Net Income	**2,550.0**
Non-Controlling Interest	**(187.5)**
Net Income after NCI	**2,362.5**

The balance sheets are slightly different.

Balance Sheet - Company A	
Total Assets	25,000.0
Total Liabilities	17,500.0
Shareholders' Equity	7,500.0

Balance Sheet - Company B	
Total Assets	3,500.0
Total Liabilities	2,250.0
Shareholders' Equity	1,250.0

In the balance sheet the total assets and total liabilities are 100 percent consolidated. However the equity is treated a bit differently. The shareholders' equity is 100% of Company A + 75% of Company B. A separate line (non-controlling interests) is created representing the 25 percent of Company B. So the Assets – Liabilities = Equity formula will still hold (in this case equity, as opposed to shareholders' equity).

Balance Sheet - Company A + B	
Total Assets	**28,500.0**
Total Liabilities	**19,750.0**
Shareholders' Equity	8,437.5
Non-Controlling Interest	312.5
Total Equity	**8,750.0**

So the Shareholders' Equity is $7, 500 + 75% × $1, 250, and the Non-

Controlling Interests is 25% × $1, 250.

Walmart also separates out a portion of their non-controlling interest and labels it "Redeemable" non-controlling interest. This is further defined on page 58 of Price Waterhouse Coopers' "A Global Guide to Accounting for Business Combinations and Non-Controlling Interests":

> *U.S. GAAP companies with securities that are redeemable upon the occurrence of an event that is not solely within the control of the issuer are subject to the guidance issued in ASC 480-10-S99-3A. Therefore, U.S. GAAP companies would continue to classify these securities as mezzanine equity in the consolidated financial statements but still consider these securities a noncontrolling interest.*

So, non-controlling interests that can still be redeemed are classified as such. We can list Walmart's redeemable non-controlling interest as the company has done.

In conclusion, after listing out the 2011 and 2012 Walmart balance sheet line items, we can total them in Cell E32, taking care to also include the total current liabilities, or "=SUM(E27:E31)." We can copy this to the right. (See Table 5.4.)

Shareholders' Equity

The shareholders' equity section of the balance sheet can be thought of in two major segments:

1. Equity. This can include common stock, preferred stock, or treasury stock.

2. Earnings. This can include:

a. Retained earnings. This is the portion of net income of the business that has not been distributed out to equity holders.

b. Other comprehensive income or loss. These are the unrealized gains or losses not included in standard net income. These unrealized gains or losses can be due to securities available for sale, derivatives, foreign currency adjustments due to foreign subsidiaries, or pension adjustments, to name a few.

Walmart lists a preferred stock line item, but it is zero, so it is not necessary to include this line item. We recommend combining the next two line items ("Capital" and "Capital in excess of par value") as one. Shares are assigned to them with a "par value, " representing some base value the shares are initially worth. This par value is quite nominal'for example, $0.10 per share, or $0.1 per share. Once the shares are issued in the market, the price issued less this par value is the "capital in excess of par value." For example, let's say we want to raise 500 shares in the market. If we issue the shares into the market at $20 per share, the total value of funds raised is $20 × 500, or $10, 000 dollars. However, if our shares had a $0.10 par value, we record this issuance in the shareholders' equity on the balance sheet in two lines: the par value at $50 (500 × $0.10) and the difference between the par value and the funds raised ($9, 950) under "capital in excess of par value." This is also commonly known as additional paid-

in capital (APIC).

TABLE 5.4 Walmart Historical Total Liabilities

Consolidated Balance Sheets (in U.S.$ millions)			
		Actuals	
On January 31	2010A	2011A	2012A
Liabilities			
Current liabilities:			
Short-term borrowings		1,031.0	4,047.0
Accounts payable		33,676.0	36,608.0
Accrued liabilities		18,701.0	18,154.0
Accrued income taxes		157.0	1,164.0
Long term debt due within one year		4,655.0	1,975.0
Obligations under capital leases due within one year		336.0	326.0
Current liabilities of discontinued operations		47.0	26.0
Total current liabilities		**58,603.0**	**62,300.0**
Long-term debt		40,692.0	44,070.0
Long-term obligations under capital leases		3,150.0	3,009.0
Deferred income taxes and other		6,682.0	7,862.0
Redeemable noncontrolling interest		408.0	404.0
Total liabilities		**109,535.0**	**117,645.0**

For modeling purposes, it is just as easy to combine these line items as long as both the par value and the APIC are referring to the same type of security. So in our balance sheet we will have $3, 577 + $352 for 2011 common stock (Row 34).

We will list retained earnings, accumulated other comprehensive income (loss), and non-controlling interest on the balance sheet as Walmart has it. Notice the non-controlling interest is listed separate from the rest of the shareholders' equity items but still considered equity. We will also separate it out as such, although it is not entirely necessary to do so. So we will first total shareholders' equity in Row 37, summing Rows 34 through 36. We can then hardcode the non-controlling interest into Row 38. Our total liabilities and equity is the sum of Row 32, Row 37, and Row 38. So in Cell E39 we will have: "=E32+E37+E38." We can copy this to the right. Notice the "match" Row 41, which tests to be sure the total assets equals the sum of the total liabilities and equity. In this case we have expanded the category of "Shareholders' equity" to be named "Equity" because of the way Walmart has grouped the non-controlling interests into a separate total. The Match should read "Y" at this point. (See Table 5.5.)

TABLE 5.5 Walmart Historical Balance Sheet

Consolidated Balance Sheets (in U.S.$ millions)

	Actuals		
On January 31	**2010A**	**2011A**	**2012A**
Assets			
Current assets:			
Cash and cash equivalents		7,395.0	6,550.0
Receivables, net		5,089.0	5,937.0

On January 31	Actuals 2010A	2011A	2012A
Inventories		36,437.0	40,714.0
Prepaid expenses and other		2,960.0	1,685.0
Other current assets (discontinued operations)		131.0	89.0
Total current assets		**52,012.0**	**54,975.0**
Property, plant and equipment, net		107,878.0	112,324.0
Goodwill		16,763.0	20,651.0
Other assets and deferred charges		4,129.0	5,456.0
Total assets		**180,782.0**	**193,406.0**
Liabilities			
Current liabilities:			
Short-term debt		1,031.0	4,047.0
Accounts payable		33,676.0	36,608.0
Accrued liabilities		18,701.0	18,154.0
Accrued income taxes		157.0	1,164.0
Long term debt due within one year		4,655.0	1,975.0
Obligations under capital leases due within one year		336.0	326.0
Current liabilities of discontinued operations		47.0	26.0
Total current liabilities		**58,603.0**	**62,300.0**
Long-term debt		40,692.0	44,070.0
Long-term obligations under capital leases		3,150.0	3,009.0
Deferred income taxes and other		6,682.0	7,862.0
Redeemable noncontrolling interest		408.0	404.0
Total liabilities		**109,535.0**	**117,645.0**

	Actuals		
On January 31	2010A	2011A	2012A
Shareholders' equity			
Common stock par value + additional paid-in-capital		3,929.0	4,034.0
Retained earnings		63,967.0	68,691.0
Accumulated other comprehensive income (loss)		646.0	(1,410.0)
Total shareholders' equity		68,542.0	71,315.0
Noncontrolling interest		2,705.0	4,446.0
Total liabilities & equity		180,782.0	193,406.0
SUPPLEMENTAL DATA:			
Balance? (Y/N)		Y	Y

BALANCE SHEET PROJECTIONS

Once we have every line item listed on the balance sheet, we are ready to make our projections.

Cash Flow Statement Drives Balance Sheet vs. Balance Sheet Drives Cash Flow Statement

There are two common methods used when modeling financial projections:

1. Balance sheet drives the cash flow statement. The cash flow statement is derived from subtracting year over year balance sheet changes.

2. Cash flow statement drives the balance sheet. The balance sheet is projected based on how cash is being sourced or spent.

Although both methods are utilized often, we strongly recommend the second method, using the cash flow to drive the balance sheet. It is a more logical approach and has been proven to be less prone to errors. Further, the first method of back-solving into a cash flow statement can lead to an incomplete picture of each individual cash flow. Let's take PP&E, for example. The net PP&E value increases by capital expenditures (CAPEX) spend and decreases by depreciation. So if PP&E on the balance sheet is increasing by $1, 000, how do we know how much of that change is attributable to depreciation versus CAPEX?

One can possibly attribute that to CAPEX of $1, 000.

Or, CAPEX could be $1, 500 and depreciation is $500, also resulting in the net $1, 000 PP&E change.

Further, we could have purchased $2, 000 in assets and written down $500 in assets. Several possibilities could account for this change in PP&E. But the cash flow statement clearly shows depreciation and CAPEX, so we can look to the cash flow statement. For this reason, if we use the cash flow statement to create the projected balance sheet, we may have a more complete picture of the business.

Note: We understand in this example that additional research on CAPEX and depreciation can reveal how the PP&E is changing from year to year. However, this illustrates the possibility of other complex situations where important cash flows can be missed by back-calculating into the cash flow statement from the balance sheet.

We highly recommend following and adhering to the method we will discuss next. One of the major plights of a junior Wall Street analyst is keeping a balance sheet in balance. Remember: The formula Assets – Liabilities = Shareholders' Equity must always hold for a balance sheet to be in balance. The difficulty in balancing a balance sheet is the ability to individually make projections to each line item within the assets, liabilities, and shareholders' equity section, and to ensure the formula still holds. When a balance sheet doesn't balance, error checking to find out what can be off can be a daunting task. This has been known to keep analysts up all night. However, with a clear and methodical approach to projecting a balance sheet, this task should no longer be so strenuous. Such all-nighters would be eliminated if one had a better conceptual understanding of the flows behind a balance sheet. With our methods the maximum time it should take to error check an unbalanced balance sheet should be one hour, so we encourage you to read on.

The key to thinking about balance sheet projections is the cash flow statement. Cash flows affect assets, liabilities, and shareholders' equity items. If a company spends cash, it could have purchased an asset, or maybe it paid back a loan. Conversely, if a company receives cash, maybe it has sold an asset or has raised funds. We look to the cash flow statement to help determine how our assets, liabilities, and shareholders' equity are being affected. If cash is spent, that must mean an asset is increasing (except cash), or a liability or shareholders' equity is decreasing; if cash is received, that must mean an asset is decreasing (except cash), or a liability or shareholders' equity is increasing. So, to project balance sheet line items, we look to each balance sheet line item and ask

ourselves two questions:

1. Which cash flow statement item or items are affecting this balance sheet item?

2. In what direction should this cash flow statement item be driving the balance sheet item? Should it be increasing or decreasing?

Assets

Let's take the "cash" line item on the balance sheet as an example. If 2012 cash was $1, 000 and we want to project 2013 cash, we look to the two questions.

The cash flow item "Total change in cash and cash equivalents" affects the balance sheet cash. Also, a positive value of cash should naturally increase the total balance of cash on the balance sheet. So if the total change in cash and cash equivalents was $500, then the 2013 cash in the balance should be $1, 500.

So for 2013 cash on the balance sheet we would take the 2012 cash from the balance sheet and add the 2013 change in cash and cash equivalents from the cash flow statement, or:

2013 Balance Sheet Cash = 2012 Balance Sheet Cash + 2013 Total Change in Cash and Cash Equivalents

In the same way, we can project the 2013 cash for Walmart.

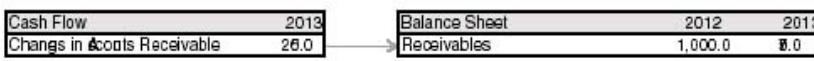
2013 Cash (Balance Sheet Cell G8)	
Excel Key Strokes	**Description**
type "="	Begins the formula
select F8	2012 Cash
type "+"	Adds
select Cash Flow Cell G39	2013 Total Change in Cash and Cash Equivalents
hit "Enter"	End
Formula Result	=F8+ 'Cash Flow Statement'! G39

This should give us $8, 460.5. We can copy this formula to the right through 2017. (See Table 5.6.)

Accounts Receivable

Let's take an accounts receivable example and assume the 2012 accounts receivable balance sheet balance was $1, 000.

To answer the first question, it's the 2013 changes in accounts receivable line item in the operating working capital section of the cash flow statement that drives the balance sheet accounts receivable. Now remember the relationship between accounts receivable on the cash flow statement and the balance sheet, as discussed in Chapter 4. If the cash change is positive, then we have collected on our accounts receivable, or accounts receivable should be reduced. So, for example, if the 2013 changes in accounts receivable is $250, then we have collected $250 in receivables. So, the 2012 receivables balance of $1, 000 should be reduced by $250 to $750.



Or:

2013 Balance Sheet Receivables = 2012 Balance Sheet Receivables – 2013 Cash Flow Changes in Accounts Receivable

Notice here the formula structure is similar to the formula for cash, but we are using a "−" instead of a "+."

So in the same way, we can project the 2013 accounts receivable for Walmart.

TABLE 5.6 Walmart Projected Balance Sheet Cash

Consolidated Balance Sheets (in U.S.$ millions)	Actuals			Estimates				
On January 31	2010A	2011A	2012A	2013E	2014E	2015E	2016E	2017E
Assets								
Current assets:								
Cash and cash equivalents		7,395.0	6,550.0	8,460.5	11,717.3	15,365.9	19,851.1	25,854.3
Receivables, net		5,089.0	5,937.0					
Inventories		36,437.0	40,714.0					
Prepaid expenses and other		2,960.0	1,685.0					
Other current assets (discontinued operations)		131.0	89.0					
Total current assets		**52,012.0**	**54,975.0**					

2013 Receivables (Balance Sheet Cell G9)	
Excel Key Strokes	**Description**
type "="	Begins the formula
select F9	2012 Receivables
type "-"	Subtracts
select Cash Flow Cell G13	2013 Changes in Accounts

	Receivable
hit “Enter”	End
Formula Result	=F9-’Cash Flow Statement’! G13

This gives us $5, 790.5. We can copy this formula to the right through 2017.

Inventories

In the same way we can look at Inventories. Let’s say 2012 inventory is $1, 500.

To answer the first of the two questions, the cash flow item relating to inventories is changes in inventory in the working capital section of the cash flow statement. Let’s say changes in inventory in 2013 is –$250. A negative change in working capital would imply that we had purchased some more inventory, so the inventories balance should increase from $1, 500 to $1, 750.

2013 Balance Sheet Inventories = 2012 Balance Sheet Inventories – 2013 Cash Flow Changes in Inventory

Notice the formula structure is similar to the accounts receivable formula structure. Also, note the “–” being used.

2013 Inventories (Balance Sheet Cell G10)

Excel Key Strokes	Description
type “=”	Begins the formula
select F10	2012 Inventories
type “-”	Subtracts
select Cash Flow Cell G14	2013 Changes in Inventory
hit “Enter”	End
Formula Result	=F10-’Cash Flow Statement’! G14

This gives us $40, 862.4. We can copy this formula to the right through 2017.

It is important to note that, for all assets (except for cash), the formula structure will *always* be:

2013 Balance Sheet Line Item = 2012 Balance Sheet Line Item – 2013 Related Cash Flow Statement Line Item

The one exception, cash, will be:

2013 Balance Sheet Line Item = 2012 Balance Sheet Line Item + 2013 Related Cash Flow Statement Line Item

This should make logical sense, because next year's balance sheet item is last year's balance increased or decreased by the related cash impact. For assets, cash flow cash has the opposite effect (increasing the asset if cash is negative, or decreasing the asset if cash is positive), hence the need for the "–." The exception is the balance sheet cash asset, where positive cash increases the cash balance, and negative cash decreases the cash balance, hence the "+." This pattern in formula structure is part of the key to a well-built model. Although there are other ways to project some of these line items, we encourage you to keep this consistent structure throughout the model. The more straightforward and consistent your model is, the better it is to read, the higher the chances are that the model will be error free, and the model will be much simpler to error check if there does happen to be mistakes. These formulas should also make conceptual sense, as it's the better understanding of such concepts that can help an analyst think through where errors in models can possibly be.

We can continue this process throughout the asset section of the income statement, matching the following balance sheet items to the related cash flow statement items, as per Table 5.7.

TABLE 5.7 Balance Sheet Asset Projections

Balance Sheet Item	Cash Flow Statement Item(s)	Formula
Prepaid expenses and other (Cell G11)	Changes in prepaid expenses and other (Cell G15)	=F11-'Cash Flow Statement'!G15
Other current assets (Cell G12)	0. Note: Sometimes there may be no identifiable cash flow item related to the balance sheet item. There will effectively be no change to the balance sheet item.	=F12
Property, plant, and equipment, net (Cell G14)	CAPEX (Cell G22), depreciation (Cell G9), proceeds from disposal of property and equipment (Cell	=F14-'Cash Flow Statement'! G22-'Cash Flow Statement'! G9-'Cash Flow

	G24), investments and business acquisitions, net of cash acquired (Cell G25) Note: As shown here, there may be more than one cash flow item that can relate to the balance sheet line item. Also, Investments and business acquisitions could have some affects to goodwill. But we will keep the assumptions simple for now.	Statement'! G24-'Cash Flow Statement'!G25
Goodwill (Cell G15)	0. Note: Again, we could have assumed a portion of "Investments and business acquisitions" could be related to goodwill but we had made the simplifying assumption that it affects our PP&E. Nothing else affects goodwill here.	=F15
Other assets and deferred charges (Cell G16)	Other investing activities (Cell G26), other operating	=F16-'Cash Flow Statement'! G26-'Cash Flow

	activities (Cell G11)	Statement'!G11- Note: This is a best guess. It is often vague where the “other” line items should be linked to. Further research could give some more clues. But as a default, we obviously assumed the “other” cash flow line item would go into the “other assets” line item. We also assumed an investing activity would more than likely be a long term activity. We had explored the idea of linking the other operating activities into the other current assets line item, but that would have brought the other current assets value below 0, which is not possible.

We can copy each of these line items to the right through 2017. We can copy the total current assets (Row 13) and total assets (Row 17), which we had calculated when inputting the historical values to the right. We have now completed the assets side of the balance sheet. (See Table 5.8.)

TABLE 5.8 Walmart Projected Assets

Consolidated Balance Sheets (in U.S.$ millions)	Actuals			Estimates				
On January 31	2010A	2011A	2012A	2013E	2014E	2015E	2016E	2017E
Assets								
Current assets:								
Cash and cash equivalents		7,395.0	6,550.0	8,460.5	11,717.3	15,365.9	19,851.1	25,854.3
Receivables, net		5,089.0	5,937.0	5,790.5	6,137.9	6,506.2	6,896.6	7,310.4
Inventories		36,437.0	40,714.0	40,862.4	43,314.1	45,913.0	48,667.8	51,587.8
Prepaid expenses and other		2,960.0	1,685.0	2,458.9	2,606.4	2,762.8	2,928.5	3,104.2
Other current assets (discontinued operations)		131.0	89.0	89.0	89.0	89.0	89.0	89.0
Total current assets		**52,012.0**	**54,975.0**	**57,661.2**	**63,864.7**	**70,636.9**	**78,433.0**	**87,945.7**
Property, plant and equipment, net		107,878.0	112,324.0	117,945.3	123,816.8	129,953.5	136,371.2	143,086.9
Goodwill		16,763.0	20,651.0	20,651.0	20,651.0	20,651.0	20,651.0	20,651.0
Other assets and deferred charges		4,129.0	5,456.0	5,576.0	5,039.0	4,852.0	4,972.0	4,435.0
Total assets		**180,782.0**	**193,406.0**	**201,833.5**	**213,371.6**	**226,093.4**	**240,427.2**	**256,118.6**

Liabilities

Let's look at the first line, short-term borrowings. If a company is going to borrow money, say $500, the cash would increase and the liability would increase by $500.

Cash Flow	2013
Short-Term Borrowings	500.0

→

Balance Sheet	2012	2013
Short-Term Borrowings	0.0	500.0

Or, if the company, for example, has $1, 000 in short-term borrowings and would like to pay back $500 of its liability, there would be a cash outflow and the liability would decrease.

Cash Flow	2013
Short-Term Borrowings	(500.0)

→

Balance Sheet	2012	2013
Short-Term Borrowings	1,000.0	500.0

So, we will add any cash changes due to short-term borrowings to the short-term borrowings balance on the balance sheet.

2013 Balance Sheet Short-Term Borrowings = 2012 Balance Sheet Short-Term Borrowings + 2013 Cash Flow Net Change in Short-Term Borrowings

Notice, however, we have not yet projected the cash flow debt borrowings changes. These changes will ultimately come from the debt schedule. Even though we have not yet projected those items, we should still continue to link up the formulas from the cash flow statement into the balance sheet.

We can now project the 2013 short-term borrowings for Walmart.

2013 Short-Term Borrowings (Balance Sheet Cell G20)

Excel Key Strokes	**Description**
type " = "	Begins the formula

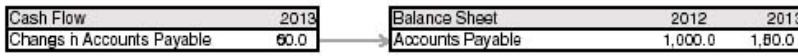
select F20	2012 Short-Term Borrowings
type “+”	Adds
select Cash Flow Cell G29	2013 Short-Term Borrowings (Repayments)
hit “Enter”	End
Formula Result	=F20+’Cash Flow Statement’! G29

This will give us $4, 047. Notice the number remains unchanged, as the projected cash flow items are empty. This will change once we create the debt schedule and link the appropriate debt schedule line items into the cash flow statement. We can copy this formula to the right through 2017.

Accounts Payable

Let’s assume the 2012 accounts payable balance sheet balance was $1, 000.

To answer the first question from the two discussed earlier, it’s the 2013 changes in accounts payable line item in the working capital section of the cash flow statement that drives this item. Now remember the relationship between accounts payable on the cash flow statement and the balance sheet as discussed in Chapter 4, working capital. If the cash change is positive, then we have increased our accounts payable. So, for example, if the 2013 changes in accounts payable is $500, then we have increased our payables by $500.



Or:

2013 Balance Sheet Accounts Payable = 2012 Balance Sheet Accounts Payable + 2013 Cash Flow Changes in Accounts Payable

Notice here, the formula structure is similar to the formula for the assets but we are using a “+” instead of a “–.” This is due to the direct relationship between liabilities and cash (i.e., cash increasing results in liabilities increasing and cash decreasing results in liabilities decreasing).

So in the same way, we can project the 2013 accounts payable for Walmart.

2013 Accounts Payable (Balance Sheet Cell G21)

Excel Key Strokes	Description
type “=”	Begins the formula
select F21	2012 Accounts Payable
type “+”	Adds

select Cash Flow Cell G16	2013 Changes in Accounts Payable
hit “Enter”	End
Formula Result	=F21+’Cash Flow Statement’!G16

This gives us $37, 309.2, and we can copy this formula to the right.

We can continue this process throughout the liabilities section of the income statement, matching the following balance sheet items to the related cash flow statement items, as per Table 5.9.

TABLE 5.9 Balance Sheet Liabilities Projections

Balance Sheet Item	Cash Flow Statement Item(s)	Formula
Accrued liabilities (Cell G22)	Changes accrued liabilities (Cell G17)	=F22+’Cash Flow Statement’!G17
Accrued income taxes (Cell G23)	Changes in accrued income taxes (Cell G18)	=F23+’Cash Flow Statement’!G18
Long-term debt due within one year (Cell G24)	0. Note: There does exist a “long-term debt borrowings (repayments)” line (Row 30), but we reserve that for the non-current long-term debt item found later.	=F24
Obligations under capital leases due within one year (Cell G25)	0. Note: There does exist a “capital lease obligations” line (Row 35), but we reserve that for the non-current capital leases item found later.	=F25

Current liabilities of discontinued operations (Cell G26)	0. Note: Again there may be no identifiable cash flow item that related to the balance sheet item. There will effectively be no change to the balance sheet item.	=F26
Long-term debt (Cell G28)	Long-term borrowings (repayments) (Cell G30)	=F28+'Cash Flow Statement'!G30
Long-term obligations under capital leases (Cell G29)	Capital lease obligations (Cell G35)	=F29+'Cash Flow Statement'!G35
Deferred income taxes and other (Cell G30)	Deferred income taxes (Cell G10)	=F30+'Cash Flow Statement'!G10
Redeemable non-controlling interest (Cell G31)	Purchase of redeemable non-controlling interest (Cell G34)	=F31+'Cash Flow Statement'!G34

We can copy each of these line items to the right through 2017. We can copy the total current liabilities (Row 27) and the total liabilities (Row 32), which we had calculated when inputting the historical values to the right. We have now completed the current liabilities side of the balance sheet. (See Table 5.10.)

Shareholders' equity line items act the same way as a liability. Cash is generated; that could mean equity was raised. Or, if cash is spent, a company could have purchased shares in a share buyback. So the general formula for a shareholders' equity balance sheet line item is:

TABLE 5.10 Walmart Projected Liabilities

Consolidated Balance Sheets (in U.S.$ millions)	Actuals			Estimates				
On January 31	2010A	2011A	2012A	2013E	2014E	2015E	2016E	2017E
Liabilities								
Current liabilities:								
Short-term borrowings		1,031.0	4,047.0	4,047.0	4,047.0	4,047.0	4,047.0	4,047.0
Accounts payable		33,676.0	36,608.0	37,309.2	39,547.7	41,920.6	44,435.8	47,101.9
Accrued liabilities		18,701.0	18,154.0	19,579.7	20,754.5	21,999.8	23,319.8	24,719.0
Accrued income taxes		157.0	1,164.0	764.4	807.8	853.9	902.8	954.6
Long term debt due within one year		4,655.0	1,975.0	1,975.0	1,975.0	1,975.0	1,975.0	1,975.0
Obligations under capital leases due within one year		336.0	326.0	326.0	326.0	326.0	326.0	326.0
Current liabilities of discontinued operations		47.0	26.0	26.0	26.0	26.0	26.0	26.0
Total current liabilities		**58,603.0**	**62,300.0**	**64,027.3**	**67,484.1**	**71,148.3**	**75,032.4**	**79,149.5**
Long-term debt		40,692.0	44,070.0	44,070.0	44,070.0	44,070.0	44,070.0	44,070.0
Long-term obligations under capital leases		3,150.0	3,009.0	3,009.0	3,009.0	3,009.0	3,009.0	3,009.0
Deferred income taxes and other		6,682.0	7,862.0	8,577.9	9,582.6	10,378.8	10,988.7	11,427.9
Redeemable noncontrolling interest		408.0	404.0	404.0	404.0	404.0	404.0	404.0
Total liabilities		**109,535.0**	**117,645.0**	**120,088.2**	**124,549.7**	**129,010.1**	**133,504.1**	**138,060.4**

2013 Shareholders' Equity Line Item = 2012 Shareholders' Equity Line Item + 2013 Cash Flow Net change

We always use a "+", so we can proceed using the same method as before. (See Table 5.11.)

TABLE 5.11 Balance Sheet Shareholders' Equity Projections

Balance Sheet Item	Cash Flow Statement Item(s)	Formula
Common stock + APIC (Cell G34)	0. Note: There is no line item on the cash flow statement relating to proceeds from a common stock equity raise which would be the major driver of this balance sheet item.	=F34
Retained earnings (Cell G35)	Net income (Cell G7) + dividends paid (Cell G31) + Purchase of company stock (Cell G33)	=F35+'Cash Flow Statement'!G7+'Cash Flow Statement'!G31+'Cash Flow Statement'!G33

	Note: Retained earnings is always driven by net income after dividends (and often non-controlling interests if there does not already exist a separate line item for it; Walmart separates non-controlling interests in Row 38). Typically, “Purchase of company stock (treasury stock)” will have its own line item in the balance sheet. However, Walmart combines this item with retained earnings as per page 34 of the annual report.	
Accumulated other comprehensive income (Cell G36)	Effect of exchange rate on cash (Cell G38), other (Cell G36), loss (income) from discontinued operations to net cash (Cell G8) Remember: Other comprehensive income is the unrealized gains and losses due to	=F36+’Cash Flow Statement’! G38+’Cash Flow Statement’! G36+’Cash Flow Statement’!G8

	divestitures, closing operations, and foreign currency adjustments. As a best guess, we included "other" from the financing activities in here as well.	
Non-controlling interest earnings (Cell G38)	0.	=F38

So we are done! Copy each of these line items to the right through 2017. We can also copy the total shareholders' equity (Row 37) and the total liabilities and equity (Row 39), which we had calculated when inputting the historical values to the right. After completing this process we should have a balancing balance sheet. You may notice a second match line at the bottom of the balance sheet in Row 41. This match checks to be sure the balance sheet is in balance, or if:

Assets = Liabilities + Shareholders' Equity

If the model does not balance, then we need to take the appropriate steps to identify where the problem could be. This is the daunting task we were referring to earlier. However, with our methodology, there are several simple steps to find a balance sheet error without the need to pull an all-nighter.

BALANCING AN UNBALANCED BALANCE SHEET

With the proper understanding that balance sheet line items increase or decrease based on how cash is sourced or spent, it is easy to understand that an unbalanced balance sheet occurs when there is a mismatch between the cash flow statement and the balance sheet. More specifically, there are four major reasons why a balance sheet may not be in balance:

1. There is a line item in the cash flow statement that has not been linked to the balance sheet. This happens quite often especially when cash flow statements have a lot of non-standard line items. It is often the case that they are accidentally left out and forgotten about.

2. There is a line item in the cash flow statement that has been used more

than once in the balance sheet. Again, this happens often in cash flow statements that have a lot of non-standard line items. But in this case it has accidentally been included in more than one place in the balance sheet. Remember: A balance sheet stays in balance when each cash flow statement item drives one of the asset, liability, or shareholders' equity line items'only one. If you link one cash flow statement item in two places, the model will be out of balance.

3. A line item in the cash flow statement is linking to the correct balance sheet item, but it is moving the balance sheet item in the wrong direction, or the line item is pulling from the wrong year. This is where having a common structure of formulas as described earlier can be of great help. As you notice in the projected balance sheet we have built together, every formula has the structure

= Balance Sheet Item 2012 +/– Cash Flow Item 2013

TABLE 5.12 Walmart Projected Balance Sheet

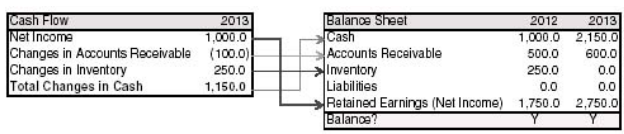
Consolidated Balance Sheets (in U.S.$ millions)	Actuals			Estimates				
On January 31	2010A	2011A	2012A	2013E	2010A	2011A	2012A	2013E
Assets								
Current assets:								
Cash and cash equivalents		7,395.0	6,550.0	8,460.5	11,717.3	15,365.9	19,851.1	25,854.3
Receivables, net		5,089.0	5,937.0	5,790.5	6,137.9	6,506.2	6,896.6	7,310.4
Inventories		36,437.0	40,714.0	40,862.4	43,314.1	45,913.0	48,667.8	51,587.8
Prepaid expenses and other		2,960.0	1,685.0	2,458.9	2,606.4	2,762.8	2,928.5	3,104.2
Other current assets (discontinued operations)		131.0	89.0	89.0	89.0	89.0	89.0	89.0
Total current assets		**52,012.0**	**54,975.0**	**57,661.2**	**63,864.7**	**70,636.9**	**78,433.0**	**87,945.7**
Property, plant and equipment, net		107,878.0	112,324.0	117,945.3	123,816.8	129,953.5	136,371.2	143,086.9
Goodwill		16,763.0	20,651.0	20,651.0	20,651.0	20,651.0	20,651.0	20,651.0
Other assets and deferred charges		4,129.0	5,456.0	5,576.0	5,039.0	4,852.0	4,972.0	4,435.0
Total assets		**180,782.0**	**193,406.0**	**201,833.5**	**213,371.6**	**226,093.4**	**240,427.2**	**256,118.6**
Liabilities								
Current liabilities:								
Short-term borrowings		1,031.0	4,047.0	4,047.0	4,047.0	4,047.0	4,047.0	4,047.0
Accounts payable		33,676.0	36,608.0	37,309.2	39,547.7	41,920.6	44,435.8	47,101.9
Accrued liabilities		18,701.0	18,154.0	19,579.7	20,754.5	21,999.8	23,319.8	24,719.0
Accrued income taxes		157.0	1,164.0	764.4	807.8	853.9	902.8	954.6
Long term debt due within one year		4,655.0	1,975.0	1,975.0	1,975.0	1,975.0	1,975.0	1,975.0
Obligations under capital leases due within one year		336.0	326.0	326.0	326.0	326.0	326.0	326.0
Current liabilities of discontinued operations		47.0	26.0	26.0	26.0	26.0	26.0	26.0
Total current liabilities		**58,603.0**	**62,300.0**	**64,027.3**	**67,484.1**	**71,148.3**	**75,032.4**	**79,149.5**
Long-term debt		40,692.0	44,070.0	44,070.0	44,070.0	44,070.0	44,070.0	44,070.0
Long-term obligations under capital leases		3,150.0	3,009.0	3,009.0	3,009.0	3,009.0	3,009.0	3,009.0
Deferred income taxes and other		6,682.0	7,862.0	8,577.9	9,582.6	10,378.8	10,988.7	11,427.9
Redeemable noncontrolling interest		408.0	404.0	404.0	404.0	404.0	404.0	404.0
Total liabilities		**109,535.0**	**117,645.0**	**120,088.2**	**124,549.7**	**129,010.1**	**133,504.1**	**138,060.4**

	Actuals			Estimates				
On January 31	2010A	2011A	2012A	2013E	2010A	2011A	2012A	2013E
Shareholders' equity								
Common stock par value + additional paid-in-capital		3,929.0	4,034.0	4,034.0	4,034.0	4,034.0	4,034.0	4,034.0
Retained earnings		63,967.0	68,691.0	74,723.3	81,975.8	90,512.2	100,400.1	111,711.2
Accumulated other comprehensive income (loss)		646.0	(1,410.0)	(1,458.0)	(1,634.0)	(1,909.0)	(1,957.0)	(2,133.0)
Total shareholders' equity		68,542.0	71,315.0	77,299.3	84,375.8	92,637.2	102,477.1	113,612.2
Noncontrolling interest		2,705.0	4,446.0	4,446.0	4,446.0	4,446.0	4,446.0	4,446.0
Total liabilities & equity		180,782.0	193,406.0	201,833.5	213,371.6	226,093.4	240,427.2	256,118.6
SUPPLEMENTAL DATA:								
Balance? (Y/N)		Y	Y	Y	Y	Y	Y	Y

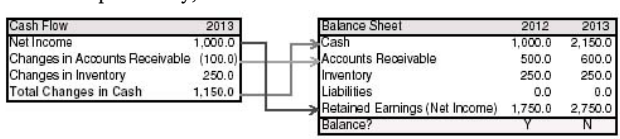
So we know that every formula in this model should have an "F" in the first term, representing the 2012 balance sheet line item, and a "G" in the second term (and subsequent terms if applicable), representing the 2013 cash flow statement line item. We also know that every asset except cash should have a "–" between the first and second terms, and every liability and shareholders' equity line item should have a "+" between the first and second terms. Knowing all of this, we can easily scan each balance sheet formula to ensure the structure is correct. If that first term is not pointing to Column F and if that second term is not pointing to column G, then one of those items is pulling from the wrong year. We also know if there is a "–" where there should be a "+, " or vice versa, then the projected balance sheet line item is moving in the wrong direction.

4. The totals are not calculating properly in the cash flow statement or balance sheet. It is possible that a balance sheet is out of balance simply because the total assets, for example, are not adding up properly or, more commonly, the total change in cash and cash equivalents is not properly including all line items in the total.

Here is an example of a simple balanced balance sheet. Each cash flow statement line item is properly driving the 2013 balance sheet line items, and the balance sheet is in balance.

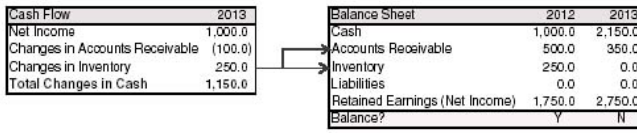


If there happens to be a cash flow line item that was not included in the balance sheet, then we have detected a problem of Type 1, as identified previously. We had left a cash flow line item out and need to link it to the balance sheet. In the following example, we had forgotten to link inventory into the balance sheet. This creates a total of $3, 000 ($2, 150 + $600 + $250) in assets, which, less $0 in liabilities, no longer matches the shareholders' equity of $2, 750. If we had linked in the inventory properly, as we had done previously, the balance sheet would balance.



If a cash flow statement line item was linked into the balance sheet more than one time, then we have detected a problem of Type 2. We have used the same cash flow line item two times. We can only use a cash flow statement line item once. In the following example, we accidentally linked inventory into two separate places in the balance sheet. So there is $250 less assets (inventory cash inflow reduces our asset balance) than we

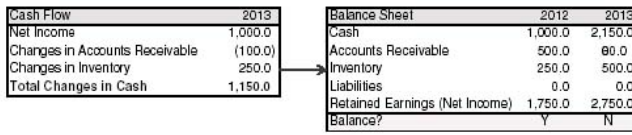
should have in the balance sheet as we have double-counted the inventory. This creates a total of $2, 500 ($2, 150 + $350) in assets, less $0 liabilities, versus $2, 750 in shareholders' equity.



Cash Flow	2013
Net Income	1,000.0
Changes in Accounts Receivable	(100.0)
Changes in Inventory	250.0
Total Changes in Cash	1,150.0

Balance Sheet	2012	2013
Cash	1,000.0	2,150.0
Accounts Receivable	500.0	350.0
Inventory	250.0	0.0
Liabilities	0.0	0.0
Retained Earnings (Net Income)	1,750.0	2,750.0
Balance?	Y	N

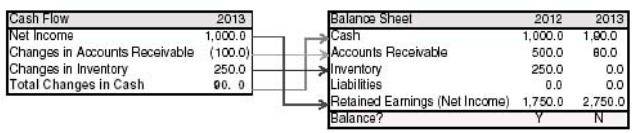
If we have added the cash flow statement item into the balance sheet when we should have subtracted or vice versa, we have detected a problem of Type 3. In the following example the inventory is linked into the balance sheet but has increased the asset from $250 to $500, when it should have decreased the asset from $250 to $0. A Type 3 problem can also occur if the balance sheet item is linking from the wrong cash flow statement column which meant it is linking in from the wrong year.



Cash Flow	2013
Net Income	1,000.0
Changes in Accounts Receivable	(100.0)
Changes in Inventory	250.0
Total Changes in Cash	1,150.0

Balance Sheet	2012	2013
Cash	1,000.0	2,150.0
Accounts Receivable	500.0	60.0
Inventory	250.0	500.0
Liabilities	0.0	0.0
Retained Earnings (Net Income)	1,750.0	2,750.0
Balance?	Y	N

If there is a problem with a total item either in the cash flow or the balance sheet, this is a problem of Type 4. In this example, each cash flow item is properly linked to the balance sheet. However, the total changes in cash is totaling wrong; it should be $1, 150. This creates a mismatch because we have linked a total of $1, 150 in individual cash flow items into balance sheet line items, but are showing only $900 in total changes in cash affecting our cash balance.



Cash Flow	2013
Net Income	1,000.0
Changes in Accounts Receivable	(100.0)
Changes in Inventory	250.0
Total Changes in Cash	900.0

Balance Sheet	2012	2013
Cash	1,000.0	1,900.0
Accounts Receivable	500.0	60.0
Inventory	250.0	0.0
Liabilities	0.0	0.0
Retained Earnings (Net Income)	1,750.0	2,750.0
Balance?	Y	N

There is a foolproof method for detecting where and why a balance sheet is out of balance. Even if the model you are working with is not structured as our model is, this method can still detect the error. We have proven this method time and time again with the most complex of models on Wall Street. We assure you, if you can get a handle on this process, balancing an unbalanced balance sheet will no longer be a daunting task.

NYSF Balance Sheet Balancing Method

We strongly recommend printing out the cash flow statement and the balance sheet, and performing this method on paper. Going through this method on paper with a pencil and calculator is the surest way to find the balance sheet errors the first time through. But, proofing the balance sheet in Excel can work as well. Whether using paper or Excel, the first step is to create a differences column on the balance sheet. The differences column will subtract the first year the model is not balancing from the previous balancing year. So, if 2012 is balancing but 2013 is not, the differences column will subtract 2012 from 2013 for each line item. It doesn't really matter which way you are subtracting, because we will just be matching the values. We should now have a column listing the differences for each balance sheet line item as shown in Table 5.13.

TABLE 5.13 Balance Sheet Differences

Consolidated Balance Sheets (in U.S.$ millions)	Actuals			Estimates	
On January 31	2010A	2011A	2012A	2013E	Differences
Assets					
Current assets:					
Cash and cash equivalents		7,395.0	6,550.0	8,460.5	1,910.5
Receivables, net		5,089.0	5,937.0	5,790.5	(146.5)
Inventories		36,437.0	40,714.0	40,862.4	148.4
Prepaid expenses and other		2,960.0	1,685.0	2,458.9	773.9
Other current assets (discontinued operations)		131.0	89.0	89.0	0.0
Total current assets		**52,012.0**	**54,975.0**	**57,661.2**	
Property, plant and equipment, net		107,878.0	112,324.0	117,945.3	5,621.3
Goodwill		16,763.0	20,651.0	20,651.0	0.0
Other assets and deferred charges		4,129.0	5,456.0	5,576.0	120.0
Total assets		**180,782.0**	**193,406.0**	**201,833.5**	

These differences are essentially cash flows. So, we now need to match each of these differences to the cash flow statement. So for each balance sheet line item we ask ourselves two balance sheet balancing questions:

1. Does this difference number match the appropriate cash flows?
2. Is this balance sheet line item moving in the right direction?

Let's take receivables for example. The difference in receivables is $146.5. So for question 1, this difference should match the "Changes in accounts receivable" line item from the cash flow statement. (See Table 5.14.)

TABLE 5.14 Walmart Cash Flow from Operating Activities

Consolidated Statements of Cash Flows (in U.S.$ millions)	Actuals			Estimates
Period Ending January 31	2010A	2011A	2012A	2013E
Cash flows from operating activities				
Net income	14,883.0	16,993.0	16,387.0	18,685.2
Loss (income) from discontinued operations to net cash	79.0	(1,034.0)	67.0	0.0
Depreciation and amortization	7,157.0	7,641.0	8,130.0	8,591.7
Deferred income taxes	(504.0)	651.0	1,050.0	715.9
Other operating activities	318.0	1,087.0	398.0	318.0
Changes in operating working capital				
Changes in accounts receivable	(297.0)	(733.0)	(796.0)	146.5
Changes in inventory	2,213.0	(3,205.0)	(3,727.0)	(148.4)
Changes in prepaid expenses and other	0.0	0.0	0.0	(773.9)
Changes in accounts payable	1,052.0	2,676.0	2,687.0	701.2
Changes in accrued liabilities	1,348.0	(433.0)	59.0	1,425.7
Changes in accrued income taxes	0.0	0.0	0.0	(399.6)
Net changes in operating working capital	**4,316.0**	**(1,695.0)**	**(1,777.0)**	**951.5**
Total cash flows from operating activities	**26,249.0**	**23,643.0**	**24,255.0**	**29,262.3**

It does: 2013 changes in accounts receivable is $146.5. For the second question, we notice the changes in accounts receivable on the cash flow statement is positive. So that should be decreasing the asset on the balance sheet. Going back to the balance sheet, we notice the receivables are in fact decreasing from $5, 937.0 in 2012 to $5, 790.5 in 2013. So the receivables check out. It is crucial that we cross off the changes in the accounts receivable line item on the cash flow statement to indicate that we have already used this line item. Remember that one of the more common errors is accidentally including the cash flow line items into the balance sheet more than once or leaving it out altogether. Marking each cash flow line item as we go through this process helps make sure we are using every cash flow line item, but only one time. So, we can continue this process moving to the next line item, answering the same two questions and crossing off the cash flow line items accordingly. We should do this for every balance sheet line item including cash; by the time we get to the end of the balance sheet, we should have crossed off every line item in the cash flow statement, but only one time.

If the process is completed and there are cash flow line items not crossed off, then you know the problem is Type 1 and you need to link that cash flow item into the balance sheet. If you find an item crossed off but used twice, then the problem is Type 2, and you need to choose only one balance sheet item to link the cash flow item to. If the value in the differences column does not match the cash flow statement, then this is a problem of Type 3. A Type 3 problem also exists if the balance sheet item is moving the wrong way, that is, increasing when the cash flow item indicates it should be decreasing or vice-versa.

There is a possibility that, when after going through this method everything checks out but the balance sheet still does not balance. If that is the case then this is a problem of Type 4. There must be a totaling error in either the cash flow statement or balance sheet.

We encourage you take the time and think through the relationship between the cash flow statement and balance sheet. Over much time this method should make conceptual sense. With a complete understanding of the relationship between the cash flow statement and balance sheet, it should be clear that outside of the four potential balance sheet problems mentioned previously, there is no other way a balance sheet can be out of balance.

With our completed balance sheet we can now move on to the final schedule: the debt schedule.

CHAPTER 6

The Debt Schedule, Circular References, and Finalizing the Model

The debt schedule is designed to track every major type of debt a company has, and the associated interest and payment schedules for each. It also helps track the cash available that could be used to pay down those debts and any interest income that could be generated from cash or cash equivalents available. Simply put, a debt schedule helps us better track the debt and interest. There is also a very important "circular reference" that is created once the debt schedule is complete and properly linked through the rest of the model. This circular reference is crucial in helping us determine various debt situations, such as the absolute maximum amount of debt a company can raise, making sure there is still enough cash to meet the interest payments.

Note: Once the circular reference is created, you may receive an Excel error message. Please refer to the "Circular References" section of this chapter on how to resolve circular reference errors.

It is important to note that the debt schedule should be the very last statement to build due to this circular reference. Make sure you have a properly balancing balance sheet before beginning the debt schedule. If you do not have a balancing balance sheet, moving on to the debt schedule will only complicate things further.

DEBT SCHEDULE STRUCTURE

Please refer to the "Debt Schedule" tab in the model. Rows 6 through 10 will help us track the amount of cash we have available to pay down debts.

The next sections are grouped by types of debt. Here we will calculate each balance of debt from year to year, track the potential debt paydowns or issuances, and calculate the interest.

At the bottom of the debt schedule we will total all issuances and payments ("total issuances/(retirements)") and all interests ("total interest expense"). We will then calculate cash at the end of the year and interest income associated with that cash, if any exist.

Notice there is a final match, which will make sure the cash at the end of the year we are calculating in the debt schedule matches the cash found on the balance sheet.

MODELING THE DEBT SCHEDULE

The very first step to modeling the debt schedule is to pull in the last reported cash and debt balances from the balance sheet. We can begin with pulling the cash balance from Walmart's 2012 balance sheet into the 2012 "Cash at the end of the year" line on the debt schedule. So Cell F48 on the debt schedule should be "='Balance Sheet'!F8." We can now start pulling in the last reported debt balances. However, before doing so, it is important to make sure the debt schedule has properly included each debt item reported on the balance sheet, including long-term debt, short-term borrowings, and capital leases. So when looking at the balance sheet we notice we have:

- Long-term debt
- Long-term debt under capital leases
- Short-term borrowings
- Long-term debt due within one year
- Capital lease obligations due within one year

Some analysts prefer to consolidate some of these debts for simplicity. For clarity, let's create a separate debt section for each debt listed. So, we will have five sections, each labeled to match the debts listed, and we can pull in the ending debt balances.

Cell F15, "Short-term borrowings (end of year)" will be "='Balance Sheet'!F20" and so on, as per Table 6.1.

TABLE 6.1 Debt Schedule Last Reported Balances

Debt Schedule Item	Balance Sheet Item	Formula
Short-term borrowings (Cell F15)	Short-term borrowings (end of year) (Cell F20)	='Balance Sheet'!F20
Long-term debt due within one year (Cell F22)	Long-term debt due within one year (end of year) (Cell F24)	='Balance Sheet'!F24
Obligations under capital leases due within one year (Cell F29)	Obligations under capital leases due within one year (end of year) (Cell F25)	='Balance Sheet'!F25
Long-term debt (Cell F36)	Long-term debt (end of year) (Cell F28)	='Balance Sheet'!F28
Long-term obligations under capital leases (Cell F43)	Long-term obligations under capital leases (end of year) (Cell F29)	='Balance Sheet'!F29

Short-Term Debt

Once we have the ending balances linked in, we can build out each debt balance, starting with the short-term debt. The 2013 short-term debt (beginning of year) is the beginning balance of debt for that year. We assume this is the same value as the ending balance of debt from the year before. In other words, we assume the balance of debt as of 1/1/2013 is the exact same as the balance of debt from 12/31/2012. In Walmart's case, as Walmart's year end is 1/31/2012, we assume the balance of debt at 2/1/2012 is the same as 1/31/2012. So we will have:

2013 Short-Term Debt (Beginning of Year) =
2012 Short-Term Debt (End of Year)

Or, in cell G12, we will have "=F15, " and we can copy this to the right.

Mandatory Issuances/(Retirements) and Non-Mandatory Issuances/(Retirements)

An issuance represents a debt raise and a retirement represents a debt paydown. In modeling we separate issuances and retirements into two categories: mandatory and non-mandatory. Mandatory issuances or retirements are those that have been planned or scheduled. For example, a yearly principal payment would be considered a mandatory payment, as a principal payment must be paid down as per the debt contract. A non-mandatory issuance or retirement is a payment or issuance made that is beyond the contractual requirements of the debt. In other words, let's say we happen to have a cash surplus at the end of one particular year. And, although it is not necessary, and assuming we are allowed to, we have decided to pay down some more debt beyond what has been required to pay down so we can save on interest payments. This is non-mandatory. Non-mandatory payments are often used in revolving lines of credit, where one would paydown debt if there is a cash surplus. In modeling, as the mandatory payments are planned, we typically hardcode them in based on the debt contract terms. And, typically, non-mandatory payments are based on a formula created that compares the cash available to our outstanding debt balance. If we have excess cash available, we will automatically pay down our debt. So in modeling it is important to separate our mandatory issuances and retirements from our non-mandatory, so we can have a place for our scheduled payments, and also be able to create this "automatic" formula and not have one disturb the other.

For now, we can keep them both as "0, " and we will create these formulas once the debt schedule is complete. So let's hardcode G13 and G14 as "0", and we can copy this formula to the right.

So, in order to calculate short-term debt at the end of the year, we simply start with the debt at the beginning of the year and add our issuances and retirements. If we want to raise $1MM in debt, for example, we would hardcode $1MM into mandatory issuances, and our debt at the end of the year would be the beginning debt plus the $1MM. Conversely, if we wanted to pay down debt, we would hardcode −$1MM into mandatory issuances, and our debt at the end of the year would be the beginning debt minus the $1MM.

2013 Short-Term Borrowings (End of Year) = 2013 Short-Term Borrowings (Beginning of Year) + Mandatory Issuances/(Retirements) + Non-Mandatory Issuances/(Retirements)

Or, Cell G15 would be "=SUM(G12:G14)."

We can copy this formula to the right and move on to the interest expense calculation. We need to first do some research to determine what Walmart's short-term borrowings interest rate is. Performing a quick word search reveals the table on page 28 of the Walmart annual report. (See

Figure 6.1.)

Here, we can see on the first line that the $4, 047 of short-term debt has an interest rate of 0.1 percent and is expected to be paid down this year. So, we can type 0.1% into Cell G17. We can also copy this rate to the right.

FIGURE 6.1 Walmart Debt Maturities

	Expected Maturity Date						
(Dollar amounts in millions)	FY13	FY14	FY15	FY16	FY17	Thereafter	Total
Liabilities							
Short-term borrowings:							
Variable rate	$4,047	$ —	$ —	$ —	$ —	$ —	$ 4,047
Average interest rate	0.1%	—	—	—	—	—	0.1%
Long-term debt:							
Fixed rate	$1,475	$4,512	$3,706	$4,357	$1,130	$28,912	$44,092
Average interest rate	4.8%	3.9%	2.2%	2.3%	2.8%	5.3%	4.6%
Variable rate	$ 500	$ 656	$ 221	$ 393	$ —	$ —	$ 1,770
Average interest rate	5.2%	0.8%	0.9%	0.6%	—	—	2.0%
Interest rate derivatives							
Interest rate swaps:							
Variable to fixed	$ —	$ 656	$ 222	$ 392	$ —	$ —	$ 1,270
Average pay rate	—	2.0%	1.5%	0.9%	—	—	1.6%
Average receive rate	—	0.8%	0.9%	0.6%	—	—	0.8%
Fixed to variable	$ 500	$2.445	$1,000	$ —	$ —	$ —	$ 3,945
Average pay rate	3.1%	1.0%	0.4%	—	—	—	1.1%
Average receive rate	5.0%	5.0%	3.1%	—	—	—	4.5%

We need to also mention there is a note directly above this schedule on page 28 of the 2012 Walmart annual report that reads:

> *The table below provides information about our financial instruments that are sensitive to changes in interest rates. For debt obligations, the table represents the principal cash flows and related weighted-average interest rates by expected maturity dates. For interest rate swaps, the table represents the contractual cash flows and weighted-average interest rates by the contractual maturity date. The notional amounts are used to calculate contractual cash flows to be exchanged under the contracts. The weighted-average variable rates are based upon prevailing market rates at January 31, 2012.*

The company mentions the 0.1 percent short-term debt interest rate is a weighted average based on the maturity of the debts. Although the table suggests the debt will mature, it is more than likely the company will refinance these debts. So technically, that weighted 0.1 percent would change once any debts have been refinanced based on the new maturity dates. We unfortunately cannot get that level of detail from this annual report, so we will stick to the 0.1 percent. It is, however, important to point out this type of research as one must pay such close attention to detail when building these models especially when it comes to debt.

To calculate interest expense, it is better to take an average balance of the beginning of year and end of year debt balances. This is important if we do not know exactly when during the year potential issuances or retirements occur. For example, let's say we have $1MM of short-term borrowings outstanding and we have a mandatory retirement of $1MM, in 2013. So, the ending balance of debt will be $0. Since we have paid down debt sometime during 2013, technically the interest on that debt will only be incurred during the time the debt has been outstanding. If we had paid that $1MM down on the very first day of the year, we should technically not incur any interest (or very little interest) for the year. On the other hand, if we had not paid down that debt until the very last day of the year, we should have incurred a full year of interest. Of course, if we know exactly when the debt is paid down we can adjust accordingly, but assuming we do not have that information readily available, we take an average as a simplifying assumption.

So 2103 interest expense on the short-term borrowings is:

Average (2013 Short-Term Borrowings (Beginning of Year), 2013 Short-Term Borrowings (End of Year)) × 2013 Interest Rate

2013 Short-Term Borrowings

Interest Expense (Cell G16)

Excel Key Strokes	Description
type “=”	Enters into “formula” mode
type “average(”	Creates the “Average” formula
select Cell G12	2013 Short-Term Borrowings (Beginning of Year)
type “, ”	Separates the two values we want to average
select Cell G15	2013 Short-Term Borrowings (End of Year)
type “)”	Closes the “Average” formula
type “*”	Multiplies
select Cell G17	2013 Interest Rate
type “Enter”	End
Formula Result	= AVERAGE(G12, G15)*G17

This should give us an interest expense of 4.0. We can copy this formula to the right.

Long-Term Debt Due within One Year

We can now move on to the next debt: the long-term debt due within one year. In order to build this out we need to repeat the exact same process as what we have done with the short-term borrowings.

The 2013 long-term debt due within one year (beginning of year) is the same value as the ending balance of debt from the year before. So:

2013 Long-Term Debt Due within One Year (Beginning of Year) =
2012 Long-Term Debt Due within One Year (End of Year)

Or, in cell G19, we will have “=F22.” We can copy this to the right.

We can make the mandatory and non-mandatory issuances “0” for now, and we can calculate the long-term debt due within one year (end of year), which will be:

TABLE 6.2 Projected Short-Term Borrowings

Debt Schedule (in U.S.$ millions)								
	Actuals				Estimates			
Period Ending January 31	2010A	2011A	2012A	2013E	2010A	2011A	2012A	2013E
Short-term borrowings / revolver								
Short-term borrowings (beginning of year)				4,047.0	4,047.0	4,047.0	4,047.0	4,047.0
Mandatory issuances / (retirements)				0.0	0.0	0.0	0.0	0.0
Non-mandatory issuances / (retirements)				0.0	0.0	0.0	0.0	0.0
Short-term borrowings (end of year)			4,047.0	4,047.0	4,047.0	4,047.0	4,047.0	4,047.0
Short-term interest expense				4.0	4.0	4.0	4.0	4.0
Short-term interest rate				*0.1%*	*0.1%*	*0.1%*	*0.1%*	*0.1%*

2013 Long-Term Debt due within One Year (End of Year) = 2013 Long-Term Debt due within One Year (Beginning of Year) + Mandatory Issuances/(Retirements) + Non-Mandatory Issuances/(Retirements)

Or,

Cell G22 would be "=SUM(G19:G21)."

Before calculating the interest expense, we also note from Figure 6.1 that Walmart has further broken down the $1, 975 of debt into two pieces, $1, 475 of the debt will incur 4.8 percent interest and $500 of the debt will incur 5.2 percent interest. Since we are not given one interest rate, it may be best to calculate the individual interests of each and divide to get the implied blended rate. We will footnote this as an exception. So, in Cell G23 we can calculate the blended interest by typing:

```
=1475*4.8% + 500*5.2%
```

This gives us 96.8. Be sure to change the font color to blue, as this is now a hardcode. We can now divide to get the implied interest rate in Cell G24:

```
=G23/G22
```

This gives us 4.9 percent. We can us the same interest rate for the future years. Remember, we cannot copy Cell G24 to the right. We need to first have Cell H24 "=G24" and then we can copy Cell H24 to the right. We can now calculate the interest expense in 2014.

2014 Long-Term Debt Due Within One Year (Cell H23)

Excel Key Strokes	Description
type "="	Enters into "formula" mode
type "average("	Creates the "Average" formula
select Cell H19	2014 Long-Term Debt Due Within One Year (Beginning of Year)
type ", "	Separates the two values we want to average
select Cell H22	2014 Long-Term Debt Due Within One Year (End of Year)
type ")"	Closes the "average" formula
type "*"	Multiplies
select Cell H24	2014 Interest Rate
type "Enter"	End
Formula Result	=AVERAGE(H19, H22)*G24

We can copy this formula to the right. See Table 6.3.

For the "current portions" of long-term issuances and retirements, we recommend keeping the balance as is for now. Even though these current portions will be paid down, in the next year another portion of long-term debt will be carved out and moved into the current portion section, effectively maintaining the current portion balance. We are again assuming the company would more than likely manage and maintain a steady debt balance unless otherwise noted, despite the maturity. However, it is always important to read through the financial notes to look for such exceptions, especially with regard to how a company's debt is managed. It is equally important to

footnote every exception made for reference. A good test is, once the debt schedule is complete, to run a scenario where all the short-term debts pay down. Then, compare the levels of interest expense with previous years'. If there is a significant drop, and if the company has not given any signals that it is doing any sort of debt paydown or restructuring, then something may be wrong.

Obligations Under Capital Leases Due Within One Year

We can now move on to the obligations under capital leases due within one year. We can again have Cell G26 link to Cell F29. Cell G27 and Cell G28 will remain "0." Cell G29 will be "=sum(G26:G28)" and we can now calculate the interest expense.

The interest rate on the obligations under capital leases due within one year is difficult to locate. After much research, searching through other Walmart filings, we could not locate the exact percentage. Although we do not recommend this method except as an absolute last resort, we can divide the current year interest paid into an average of the beginning-of-year and end-of-year debt balance to get an implied interest rate for that particular year. So if the company has reported $3, 009 of obligations under capital leases (long-term), and $326 of obligations under capital leases due within one year, at the end of Walmart's 2012 year (January 31, 2012), there is a total of $3, 335 of obligations outstanding of which had incurred $288 of capital lease interest expense (from the Walmart income statement). We can look to the 2011 year-end total obligations under capital leases as the 2012 beginning-of-the-year value, which is ($336 + $3, 150) or $3, 486. So taking the average of $3, 486 and $3, 335 divided into $288, we get approximately 8.4 percent. Let's use this. We recommend typing the formula components directly into the cell and adding a comment so it is known exactly where the 8.4 percent came from. So in cell G31, we recommend inputting "=288/(AVERAGE(3486, 3335))."

TABLE 6.3 Projected Long-Term Debt Due within One Year

Debt Schedule (in U.S.$ millions)	Actuals			Estimates				
Period Ending January 31	2010A	2011A	2012A	2013E	2010A	2011A	2012A	2013E
Long-term debt due within one year								
Long-term debt due within one year (beginning of year)				1,975.0	1,975.0	1,975.0	1,975.0	1,975.0
Mandatory issuances / (retirements)				0.0	0.0	0.0	0.0	0.0
Non-mandatory issuances / (retirements)				0.0	0.0	0.0	0.0	0.0
Long-term debt due within one year (end of year)			1,975.0	1,975.0	1,975.0	1,975.0	1,975.0	1,975.0
Interest expense				96.8	96.8	96.8	96.8	96.8
Interest rate				4.9%	4.9%	4.9%	4.9%	4.9%

We can now calculate the interest expense with the formula in Cell G30.

2013 Obligations Under Capital Leases Due Within One Year (Cell G30)	
Excel Key Strokes	**Description**
type "="	Enters into "formula" mode
type "average("	Creates the "Average" formula
select Cell G26	2013 Obligations under Capital Leases Due within One Year (Beginning of Year)

type “, ”	Separates the two values we want to average
select Cell G29	2013 Obligations under capital leases due within one year (end of year)
type “)”	Closes the “average” formula
type “*”	Multiplies
select Cell G31	2013 Interest Rate
type “Enter”	End
Formula Result	=AVERAGE(G26, G29)*G31

We can copy the complete section from Cell G26 through Cell G31 to the right. (See Table 6.4.)

If you notice, there is a pattern in the formulas for each debt, containing six rows from the beginning balance of debt through to the interest rate. As a shortcut, we can copy the formulas of these six rows from the previous debt down to the next debt, and all we would have to do from there is make minor adjustments to the interest rate and the issuances rows. So, we can highlight Cells G26 through K30 and type “Ctrl + C” or select “Copy” from the menu bar to copy the formulas from the obligations under capital leases due within one year. We can now paste these formulas to the other debts to avoid us having to reconstruct the formulas for each debt. So, we can select Cell G33 and type “Ctrl + V” or select “Paste” from the menu bar to paste the formulas into the long-term debt section. We can do the same in the capital lease obligations section by selecting Cell G40 and typing “Ctrl + V” or select “Paste” again. We now have to go back and adjust the interest rates and payment schedules for these debts.

Long-Term Debt

For the long-term debt we notice, based on Figure 6.1, that there is a schedule for the maturities of the long-term debt balances and the interest on each. For example, we see in FY14, $4, 512 of fixed-rate debt will mature and has an interest rate of 3.9 percent. There is also $656 of variable-rate debt maturing at a rate of 0.8 percent. So, we could start hard coding the payments into Row 34. However, doing so would dramatically reduce the debt balance. Although this could be the company’s goal, it is more likely that the company is planning to refinance much of these debts as maturity approaches. We need to do some more high-level research to understand the company’s goals. That is, is it really trying to achieve such aggressive debt paydown, or is it planning on maintaining consistent debt levels?

TABLE 6.4 Projected Capital Lease Obligations Due within One Year

Debt Schedule								
(in U.S.$ millions)	Actuals				Estimates			
Period Ending January 31	2010A	2011A	2012A	2013E	2010A	2011A	2012A	2013E
Obligations under capital leases due within one year								
Obligations under capital leases due within one year (beginning of year)				326.0	326.0	326.0	326.0	326.0
Mandatory issuances / (retirements)				0.0	0.0	0.0	0.0	0.0
Non-mandatory issuances / (retirements)				0.0	0.0	0.0	0.0	0.0
Obligations under capital leases due within one year (end of year)			326.0	**326.0**	**326.0**	**326.0**	**326.0**	**326.0**
Interest expense				27.5	27.5	27.5	27.5	27.5
Interest rate				8.4%	8.4%	8.4%	8.4%	8.4%

Conducting further research reveals the following note on page 27 of the Walmart annual report:

We plan to refinance existing long-term debt obligations as they mature and may desire to obtain additional long-term financing for other corporate purposes.

In other words, Walmart will most certainly refinance the debts or further raise additional debts, which will ultimately net against any payments we had estimated previously. So we recommend making all payments "0." It was important, however, to go through the analysis for instructional purposes.

In order to calculate interest expense, we notice on the far right of Figure 6.1 the total debt levels and the respective interest rates. Earlier, we had identified the portion of long-term debt due within one year ($1, 975) matched the sum of the debts listed as maturing in 2013 ($1, 475 + $500) in the table. However, the sum of the remaining balances of debts in that table does not match this long-term debt balance of $44, 070. So, we struggled a bit with exactly which interest rate to use. Our best solution was to look to the total column in Figure 6.1, and even though it is slightly different from the balance we have, we can calculate the total implied interest rate, and assume it should not change much for the balance of debt we have left outstanding. We can calculate the interest of the $44, 092 at 4.6 percent and the $1, 770 at 2.0 percent, and divide by the sum of the debts to get the implied rate. Again it is recommended to type this directly into the cell, so Cell G38 is "=(44092*.046+1770*.02)/(44092+1770)"; that gives us 4.5 percent. We can use the same interest rate for the future years copying cell G38 to the right. (See Table 6.5.)

Long-Term Obligations under Capital Leases

For the long-term obligations under capital leases, there is a table on page 50 of the Walmart annual report that contains a list of the leases in each year. (See Figure 6.2.)

TABLE 6.5 Projected Long-Term Debt

Debt Schedule								
(in U.S.$ millions)	Actuals				Estimates			
Period Ending January 31	2010A	2011A	2012A	2013E	2010A	2011A	2012A	2013E
Long-term debt								
Long-term debt (beginning of year)				44,070.0	44,070.0	44,070.0	44,070.0	44,070.0
Mandatory issuances / (retirements)				0.0	0.0	0.0	0.0	0.0
Non-mandatory issuances / (retirements)				0.0	0.0	0.0	0.0	0.0
Long-term debt (end of year)			44,070.0	**44,070.0**	**44,070.0**	**44,070.0**	**44,070.0**	**44,070.0**
Interest expense				1,983.0	1,983.0	1,983.0	1,983.0	1,983.0
Interest rate				4.5%	4.5%	4.5%	4.5%	4.5%

FIGURE 6.2 Walmart Leases

(Amounts in millions) Fiscal Year	Operating Leases	Capital Leases
2013	$ 1,644	$ 608
2014	1,590	580
2015	1,525	532
2016	1,428	497
2017	1,312	457
Thereafter	8,916	3,261
Total minimum rentals	$16,415	$5,935
Less estimated executory costs		50
Net minimum lease payments		5,885
Less imputed interest		2,550
Present value of minimum lease payments		$3,335

Notice toward the bottom of the table, that the present value of the minimum lease payments (after interest and executory costs) is the sum of the outstanding balance of capital lease obligations and current portion of capital lease obligations ($3, 009 + $326). To properly determine the paydowns we would need a further breakdown of the executory costs and the imputed interest. We can estimate this as we have calculated estimated interest previously. However, we have also noticed by looking at historical reports that the current obligations of capital leases has been decreasing by $10 each year; it was $346, $336, and $326 in 2010, 2011, and 2012, respectively. We can simply continue this trend estimating $316 in 2013, and reducing the paydown by $10 each year. The only additional adjustment we could potentially make is the possibility of Walmart increasing its balance of capital lease obligations in the future. Looking back a few more years by digging into prior year Walmart financial reports, we see that the company has maintained a similar balance to this year. So, again, let's leave the issuances and paydowns at zero. As discussed with the other debts, we could have modeled sophisticated paydowns and adjusted for issuances to match, but as it arguably won't affect the overall debt balances too much, in this case we will leave it alone.

For the interest rate, the 8.4 percent we used to calculate the "obligations under capital leases due within one year" was also based on long-term balances as this was the best information we had. So we can use the same rate. We can link it in by having Cell G45 equal to "=G31, " and copying to the right. (See Table 6.6.)

TABLE 6.6 Projected Long-Term Obligations under Capital Leases

Debt Schedule								
(in U.S.$ millions)	Actuals			Estimates				
Period Ending January 31	2010A	2011A	2012A	2013E	2010A	2011A	2012A	2013E
Long-term obligations under capital leases								
Long-term obligations under capital leases (beginning of year)				3,009.0	3,009.0	3,009.0	3,009.0	3,009.0
Mandatory issuances / (retirements)				0.0	0.0	0.0	0.0	0.0
Non-mandatory issuances / (retirements)				0.0	0.0	0.0	0.0	0.0
Long-term obligations under capital leases (end of year)			3,009.0	3,009.0	3,009.0	3,009.0	3,009.0	3,009.0
Interest expense				254.1	254.1	254.1	254.1	254.1
Interest rate				*8.4%*	*8.4%*	*8.4%*	*8.4%*	*8.4%*

Total Issuances/(Retirements)

We can now move on to "Total issuances/(retirements)" (Row 46). As stated, this is a sum of all of the mandatory and non-mandatory issuances and retirements from the debts already mentioned. So, cell G46 is "=G42+ G41+G35+G34+G28+G27+G21+G20+G14+G13." The value will be zero for now. We can copy this to the right.

Total Interest Expense

Row 47 ("Total interest expense") is the sum of the interests. Cell G47 is "=G44+G37+G30+G23+G16." This gives us $2, 365.5 which is quite similar to 2012's interest of $2, 322.0. If we had assumed any debt paydowns previously, this number would have decreased quite significantly, which we would consider unusual unless the company suggested pursuing a debt paydown plan. So, we can copy this to the right.

Cash Available to Pay Down Debt

We can now consider the cash. Note the ending balance of cash that we had pulled in to Cell F48. As we had done with the debts, this will link into the cash at the beginning of the year (Cell G7). Cell G7 will read "=F48." We can copy this to the right.

Cash flow before debt paydown is a measure of all cash generated or paid, excluding cash raised or paid for debts. It is important for us to get a proper measure of cash excluding cash related to debts because in the debt schedule we want to determine how much cash we can use to pay down debts. At the bottom of the cash flow statement, in Row 41, is the line item "Cash flow before debt paydown." In order to calculate this we need to sum everything in the cash flow statement that is not related to debts. We exclude:

- Short-term borrowings (repayments)
- Long-term borrowings (repayments)
- Capital lease obligations

The formula in Cell G41 of the cash flow statement will be "=G20+ G27+G31+G33+G34+G36+G38."

We are only concerned with the projected years, so we begin with 2013 and we can copy to the right. Take care to include the "Effect of exchange rate on cash, " which is easy to accidentally

leave out. Note: Some believe we can simply take the total change in cash and cash equivalents and subtract the previously mentioned debts. Although that is mathematically correct, doing so in the model would create a second circular reference. It is better to sum as before and exclude them from the formula altogether. (See Table 6.7.)

TABLE 6.7 Projected Cash Flow before Debt Paydown

Consolidated Statements of Cash Flows								
(in U.S.$ millions)	Actuals				Estimates			
Period Ending January 31	2010A	2011A	2012A	2013E	2010A	2011A	2012A	2013E
Total change in cash and cash equivalents	632.0	(512.0)	(845.0)	1,910.5	3,256.8	3,648.7	4,485.2	6,003.1
SUPPLEMENTAL DATA:								
Cash flow before debt paydown				1,910.5	3,256.8	3,648.7	4,485.2	6,003.1

We can now link this into the Row 8 of debt schedule. G8 in the debt schedule is "='Cash Flow Statement'!G41" and we can copy this to the right.

Minimum cash is the minimum cash balance a company maintains at the end of the year. There could be several reasons why a company would want to maintain a minimum cash balance. First, it is a safety cushion in order to avoid a potential cash shortfall. Second, lenders often require a company to maintain a minimum balance in order to ensure principal and interest payments are made. Projecting the minimum cash balance can vary from company to company. Minimum cash balances might be calculated as a percentage of sales, operating capital, or total cash, or it can be the collateral stated in the company's debt contracts that a company must maintain. It is not the most significant of projections, but we do recommend researching how the company has come up with its minimum cash balance for clues. Notice that Walmart has $6.5Bn of cash on its balance sheet, so it is unlikely facing a cash shortfall unless there has been a major company event. So we are not surprised that further research on minimum cash does not reveal much information. Let's be simple and conservative, estimating $1Bn of a minimum cash cushion. So, we can enter -1000 into cell G9 of the debt schedule. We enter the value as a negative number because we want to remove the minimum cash balance from the cash we can use to pay down debts. So the total cash available to pay down debt is a sum of the cash at the beginning of the year and the cash flow before debt paydown, less the minimum cushion, or "=SUM(G7:G9)."

The total cash available to pay down debt is the amount of cash that's arguably free to utilize. Should a company decide to manage its business as such, it can conceivably utilize all those funds to pay down debts in order to save on interest payments. However, it is important to note that not all debts can be paid at will without penalty. (See Table 6.8.)

We can now calculate "Cash at the end of the year" at the bottom of the debt schedule in Row 48. We calculate cash at the end of the year by first starting with "Cash at the beginning of the year" and then adding to it "Cash
flow before debt paydown" and "Total issuances and retirements." This confuses many but think about the fact that we want to capture a complete measure of cash from the beginning of the period to the end of the period, including capturing cash payments or issuances from debt paydowns. We first want to begin with "Cash at the beginning of the year, " as we have done with any continuous balance, such as the debts. We then want to add all of the cash generated during the year. The "Cash flow before debt paydown" is the closest measure of that on this particular sheet. So we have all cash except for cash raised or paid for debts. This is located in total issuances/retirements. It is often confused that we need to subtract interest here, but once linked in properly, interest will already be included in this calculation. We will discuss this next. So the formula for "Cash at the end of the year" is:

TABLE 6.8 Projected Total Cash Available to Pay Down Debt

Debt Schedule					
(in U.S.$ millions)	Estimates				
Period Ending January 31	2013E	2010A	2011A	2012A	2013E
Cash available to pay down debt					
Cash at beginning of year	6,550.0	0.0	0.0	0.0	0.0
Cash flow before debt paydown	1,910.5	3,256.8	3,648.7	4,485.2	6,003.1
Minimum cash cushion	(1,000.0)	(1,000.0)	(1,000.0)	(1,000.0)	(1,000.0)
Total cash available to pay down debt	**7,460.5**	**2,256.8**	**2,648.7**	**3,485.2**	**5,003.1**

Cash at the Beginning of the Year + Cash Flow before Debt Paydown
+ Total Issuances and Retirements

Or, in Cell G48, "=G7+G8+G46."

We can copy this to the right.

Now that we have a value of cash at the end of the year, we can calculate interest income. Interest income is commonly the income received from cash held in savings accounts, certificates of deposits, and other investments. The interest income based on cash and cash equivalents is calculated in Row 49.

As done with interest expense, we can take the average balance of the cash at the beginning of the year and the cash at the end of the year and multiply by some interest rate. So, interest income is:

Average (Cash at the beginning of the year,
Cash at the end of the year) × Interest Rate

Let's calculate this formula now even though we have not entered the interest rate yet.

2013 Interest Income (Cell G49)

Excel Key Strokes	Description
type "="	Enters into "formula" mode
type "average("	Creates the "Average" formula
select Cell G7	2013 Cash at Beginning of Year
type ", "	Separates the two values we want to average
select Cell G48	2013 Cash at the End of Year
type ")"	Closes the "Average" formula
type "*"	Multiplies
select Cell G50	2013 Interest Rate
type "Enter"	End
Formula Result	=AVERAGE(G7, G48)*G50

It is not so easy to determine a proper interest income rate without solid detail on the cash investments. As a default, we typically recommend a low conservative rate of ~1 percent. However, utilizing 1 percent here gives an interest income that is slightly lower than the prior years' interest. If we increase the interest rate up to 2.5 percent, we get $187.6, which is more similar to last year's interest. So let's use this. We can copy Cells G49 and G50 to the right.

Additional research also needs to be done to see if a company has other investments beyond just the cash and cash equivalents that are generating interest within the interest income account. If so, additional analyses should be done to get an accurate measure of interest.

We can now link the interest expense and interest income into the income statement. Rows 27, 28, and 29 in the income statement still have yet to be properly linked. Traditionally the total interest expense will be linked in from Row 47 (total interest expense) in the debt schedule. However, Walmart has separated out the interests related to the capital leases. So the interest expense in Row 27 of the income statement will reflect just the term loan interests, or interest on the short-term borrowings, the current portion of long-term debt, and the long-term debt. So, G27 on the income statement will be

```
='Debt Schedule'!G16+'Debt Schedule'!G23+'Debt Schedule'!G37
```

We can copy this to the right.

Similarly, in the next line we should be pulling in just the interest expense related to the capital leases, or the Obligations under capital leases due within one year plus the long-term obligations under capital leases. So Cell G28 will be

```
='Debt Schedule'!G30+'Debt Schedule'!G44
```

Finally we can link the interest income in from the debt schedule. We will, however, link the interest income in as a negative value. Although a little confusing, Walmart lists its interest income as a negative value, as the income nets against interest expenses to create a total net value. In other words:

Net Interest Expense = Interest Expense + – Interest Income
(plus negative interest income)

Some companies will show interest income as a positive value, but then we would need to have the net interest expense line be Interest Expense – Interest Income. It is important to double-check how these items are flowing in the historical numbers to make sure our projections are correct. So we can link interest income into the income statement in Cell G29:

```
=-'Debt Schedule'!G49
```

And we can copy this to the right.

We finally have a complete representation of the income statement. (See Table 6.9.)

Notice that once the interest expense and interest income are linked in, the values have changed. Interest income, for example, has lowered to $168.5. This is normal and due to the circular reference created when linking these items through. (We will discuss this in the next section.)

TABLE 6.9 Walmart Projected Income Statement with Interest

Consolidated Income Statements

(in U.S.$ millions except per share amounts)	Actuals			Estimates				
Period Ending January 31	**2010A**	**2011A**	**2012A**	**2013E**	**2014E**	**2015E**	**2016E**	**2017E**
Revenue								
Net sales	405,132.0	418,952.0	443,854.0					
% Growth		*3.4%*	*5.9%*					
Membership and other income	2,953.0	2,897.0	3,096.0					
% Growth		*-1.9%*	*6.9%*					
Total revenue	**408,085.0**	**421,849.0**	**446,950.0**	**473,767.0**	**502,193.0**	**532,324.6**	**564,264.1**	**598,119.9**
Y/Y revenue growth (%)		*3.4%*	*6.0%*	*6.0%*	*6.0%*	*6.0%*	*6.0%*	*6.0%*
Cost of goods sold								
Cost of goods sold	304,106.0	314,946.0	335,127.0	355,325.3	376,644.8	399,243.5	423,198.1	448,589.9
COGS as a % of revenue	*74.5%*	*74.7%*	*75.0%*	*75.0%*	*75.0%*	*75.0%*	*75.0%*	*75.0%*
Gross profit	**103,979.0**	**106,903.0**	**111,823.0**	**118,441.8**	**125,548.3**	**133,081.2**	**141,066.0**	**149,530.0**
Gross profit margin (%)	*25.5%*	*25.3%*	*25.0%*	*25.0%*	*25.0%*	*25.0%*	*25.0%*	*25.0%*

	Actuals			Estimates				
Period Ending January 31	**2010A**	**2011A**	**2012A**	**2013E**	**2014E**	**2015E**	**2016E**	**2017E**
Operating expenses								
Selling, general and administrative	72,820.0	73,720.0	77,135.0	81,961.7	86,879.4	92,092.2	97,617.7	103,474.7
SG&A as a % of revenue	*17.8%*	*17.5%*	*17.3%*	*17.3%*	*17.3%*	*17.3%*	*17.3%*	*17.3%*
EBITDA	**31,159.0**	**33,183.0**	**34,688.0**	**36,480.1**	**38,668.9**	**40,989.0**	**43,448.3**	**46,055.2**
EBITDA margin (%)	*7.6%*	*7.9%*	*7.8%*	*7.7%*	*7.7%*	*7.7%*	*7.7%*	*7.7%*
Depreciation and amortization	7,157.0	7,641.0	8,130.0	8,591.7	9,194.3	9,833.1	10,510.2	11,227.9
EBIT	**24,002.0**	**25,542.0**	**26,558.0**	**27,888.4**	**29,474.6**	**31,155.9**	**32,938.1**	**34,827.3**
EBIT margin (%)	*5.9%*	*6.1%*	*5.9%*	*5.9%*	*5.9%*	*5.9%*	*5.8%*	*5.8%*
Interest								
Interest expense (debt)	1,787.0	1,928.0	2,034.0	2,083.8	2,083.8	2,083.8	2,083.8	2,083.8
Interest expense (Capital Leases)	278.0	277.0	288.0	281.6	281.6	281.6	281.6	281.6
Interest income	(181.0)	(201.0)	(162.0)	(168.5)	(195.8)	(246.2)	(313.0)	(410.6)
Net interest expense	**1,884.0**	**2,004.0**	**2,160.0**	**2,197.0**	**2,169.7**	**2,119.3**	**2,052.5**	**1,954.9**
EBT	**22,118.0**	**23,538.0**	**24,398.0**	**25,691.4**	**27,304.9**	**29,036.6**	**30,885.6**	**32,872.4**
EBT margin (%)	*5.4%*	*5.6%*	*5.5%*	*5%*	*5%*	*5%*	*5%*	*5%*
Income tax expense	7,156.0	7,579.0	7,944.0	8,478.2	9,010.6	9,582.1	10,192.3	10,847.9
Tax rate (%)	*32.4%*	*32.2%*	*32.6%*	*33.0%*	*33.0%*	*33.0%*	*33.0%*	*33.0%*
Net income (adjusted)	**14,962.0**	**15,959.0**	**16,454.0**	**17,213.2**	**18,294.3**	**19,454.5**	**20,693.4**	**22,024.5**
Non-recurring events								
Discontinued operations	(79.0)	1,034.0	(67.0)	0.0	0.0	0.0	0.0	0.0
Other	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total non-recurring events	(79.0)	1,034.0	(67.0)	0.0	0.0	0.0	0.0	0.0
Net income (After non-recurring events)	**14,883.0**	**16,993.0**	**16,387.0**	**17,213.2**	**18,294.3**	**19,454.5**	**20,693.4**	**22,024.5**
Distributions								
Income attributable to non-controlling interests	(513.0)	(604.0)	(688.0)	(723.0)	(768.4)	(817.1)	(869.1)	(925.0)
Non-controlling interests % of net income	*3.4%*	*3.6%*	*4.2%*	*4.2%*	*4.2%*	*4.2%*	*4.2%*	*4.2%*
Net income (as reported)	**14,370.0**	**16,389.0**	**15,699.0**	**16,490.3**	**17,525.9**	**18,637.4**	**19,824.2**	**21,099.5**
Earnings per share (EPS)								
Basic	3.72	4.48	4.54	4.91	5.37	5.89	6.47	7.12
Diluted	3.71	4.47	4.52	4.90	5.36	5.88	6.46	7.10

	Actuals			Estimates				
Period Ending January 31	2010A	2011A	2012A	2013E	2014E	2015E	2016E	2017E
Average common shares outstanding								
Basic	3,866	3,656	3,460	3,361	3,262	3,163	3,064	2,965
Diluted	3,877	3,670	3,474	3,366	3,267	3,168	3,069	2,970
Shares repurchased					99	99	99	99

We have one final set of links left before the model is complete. We still need to link the debt payments and issuances into the financing activities of the cash flow statement from the debt schedule. Each debt in the debt schedule contains rows reflecting any issuance or payments made. These should be reflected in the financing activities in the cash flow statement. For example, Row 29 of the cash flow statement contains issuances and payments of short-term borrowings. This should be linked in from the issuances/(retirements) line items in the short-term debt section of the debt schedule, both the mandatory and non-mandatory. So, cell G29 in the cash flow statement should be

```
='Debt Schedule'!G13+'Debt Schedule'!G14
```

We can copy this formula to the right.

Similarly the next line on the cash flow statement, long-term borrowings (repayments), should be linked in from the issuances/(retirements) line items in the long-term debt section of the debt schedule, both the mandatory and non-mandatory. So, Cell G30 should be

```
='Debt Schedule'!G34+'Debt Schedule'!G35
```

We can copy this formula to the right and continue with the last empty row referring to the capital lease obligations, Cell G35:

```
='Debt Schedule'!G41+'Debt Schedule'!G42
```

We can copy this to the right. Notice that there are two more debt items in the debt schedule ("Long-term debt due within one year" and "Obligations under capital leases due within one year") that don't have matching line items in the cash flow from financing activities section. We should add lines to the financing activities, so that if we ever happen to have issuances and retirements to these debts, they should flow in. Let's add them above Row 31 in the cash flow statement, so in Cell G31 we can hit "Shift" + "Space Bar" to highlight the entire row, then hit "Ctrl" + "+" (or "Ctrl" + "Shift" + "=") two times to insert two rows. Row 31 is now empty and can be labeled "Long-term debt due within one year." We can hardcode "0" for the historical years, D31, E31, and F31. In Cell G31 we can link in the issuances and retirements:

```
='Debt Schedule'!G20+'Debt Schedule'!G21
```

We can copy this formula right and label Row 32 as "Obligations under capital leases due within one year." Again, we can hardcode "0" for the historical years, D32, E32, and F32. In Cell G32 we can link in the issuances and retirements:

```
='Debt Schedule'!G27+'Debt Schedule'!G28
```

Since we added these two new rows, it is always important to double-check and make sure the total formulas are still adding up properly; they look okay. (See Table 6.10.)

Now we have two new cash flow items that have not been linked in to the balance sheet. We need to link these rows in to their respective debt balances so that any potential issuances and retirements will properly flow from the cash flow into the balance sheet. In the balance sheet for long-term debt due within one year (Cell G24), we need to change the formula from "=F24" to

“ = F24 +
’Cash Flow Statement’!G31.” It is now adding to the balance sheet any potential issuances or retirements. We can copy this new formula to the right. Similarly for obligations under capital leases due within one year, we need to change the formula in Cell G25 to read “ = F25 + ’Cash Flow Statement’!G32.” We can copy this to the right and everything should now be properly linked in.

Now that the debt schedule is fully linked we can make sure our final “match” checks out. Row 51 in the debt schedule checks to make sure the cash at the end of the year matches the cash at the top of the balance sheet. This match is important because we are effectively calculating cash two different ways in the model. The balance sheet cash is calculated from the prior year balance sheet cash balance plus changes in cash from the cash flow statement. However, the cash at the end of the year on the debt schedule is calculated from the cash balance at the beginning of the year at top of the debt schedule, then adding in cash flow before debt paydown and issuances and retirements. The point of this is to ensure we have the debt issuances/(retirements), interest expense, and interest income wired in correctly. (See Table 6.11.)

CIRCULAR REFERENCES

In a fully linked model, there is one major, yet important circular reference flowing through the statements. This circular reference is related to the debt and interest. Specifically, if debt is raised in the debt schedule, cash at the end of the year will increase and therefore interest income will increase. As interest income links to the income statement, net income is increased. That net income increase flows to the top of the cash flow statement, and increases cash and, more importantly, “Cash flow before debt paydown” at the bottom of the cash flow statement. This cash flow before debt paydown links to the debt schedule and increases the cash available to paydown debt, and therefore increases the cash at the end of the year, which increases the interest income, and so on.

TABLE 6.10 Walmart Projected Cash Flow from Financing Activities

Consolidated Statements of Cash Flows								
(in U.S.$ millions)	Actuals				Estimates			
Period Ending January 31	2010A	2011A	2012A	2013E	2010A	2011A	2012A	2013E
Cash flows from financing activities								
Short-term borrowings (repayments)	(1,033.0)	503.0	3,019.0	0.0	0.0	0.0	0.0	0.0
Long-term borrowings (repayments)	(487.0)	7,316.0	466.0	0.0	0.0	0.0	0.0	0.0
Long-term debt due within one year	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Capital lease obligations due within one year	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Dividends paid	(4,217.0)	(4,437.0)	(5,048.0)	(5,344.7)	(5,187.3)	(5,029.9)	(4,872.5)	(4,715.1)
Dividends paid ($/share)				*1.59*	*1.59*	*1.59*	*1.59*	*1.59*
Purchase of common stock [treasury stock]	(7,276.0)	(14,776.0)	(6,298.0)	(7,308.2)	(7,308.2)	(7,308.2)	(7,308.2)	(7,308.2)
Purchase of redeemable noncontrolling interest	(436.0)	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Capital lease obligations	(346.0)	(363.0)	(355.0)	0.0	0.0	0.0	0.0	0.0
Other	(396.0)	(271.0)	(242.0)	(242.0)	(242.0)	(242.0)	(242.0)	(242.0)
Total cash from financing activities	**(14,191.0)**	**(12,028.0)**	**(8,458.0)**	**(12,894.9)**	**(12,737.5)**	**(12,580.1)**	**(12,422.6)**	**(12,265.2)**
Effect of exchange rate on cash	194.0	66.0	(33.0)	194.0	66.0	(33.0)	194.0	66.0
Total change in cash and cash equivalents	**632.0**	**(512.0)**	**(845.0)**	**378.3**	**1,803.8**	**2,230.1**	**3,111.9**	**4,696.0**

TABLE 6.11 Projected Debt Schedule

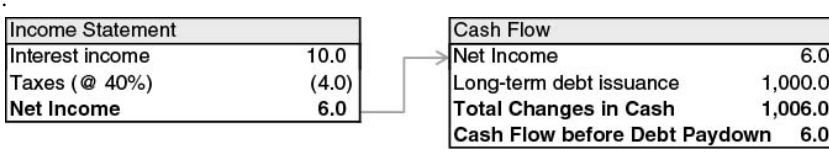
Debt Schedule								
(in U.S.$ millions)	Actuals			Estimates				
Period Ending January 31	2010A	2011A	2012A	2013E	2010A	2011A	2012A	2013E
Cash available to pay down debt								
Cash at beginning of year				6,550.0	6,928.3	8,732.1	10,962.2	14,074.1
Cash flow before debt paydown				378.3	1,803.8	2,230.1	3,111.9	4,696.0
Minimum cash cushion				(1,000.0)	(1,000.0)	(1,000.0)	(1,000.0)	(1,000.0)
Total cash available to pay down debt				**5,928.3**	**7,732.1**	**9,962.2**	**13,074.1**	**17,770.1**
Short-term borrowings / revolver								
Short-term borrowings (beginning of year)				4,047.0	4,047.0	4,047.0	4,047.0	4,047.0
Mandatory issuances / (retirements)				0.0	0.0	0.0	0.0	0.0
Non-mandatory issuances / (retirements)				0.0	0.0	0.0	0.0	0.0
Short-term borrowings (end of year)			**4,047.0**	**4,047.0**	**4,047.0**	**4,047.0**	**4,047.0**	**4,047.0**
Short-term interest expense				4.0	4.0	4.0	4.0	4.0
Short-term interest rate				*0.1%*	*0.1%*	*0.1%*	*0.1%*	*0.1%*
Long-term debt due within one year								
Long-term debt due within one year (beginning of year)				1,975.0	1,975.0	1,975.0	1,975.0	1,975.0
Mandatory issuances / (retirements)				0.0	0.0	0.0	0.0	0.0
Non-mandatory issuances / (retirements)				0.0	0.0	0.0	0.0	0.0
Long-term debt due within one year (end of year)			**1,975.0**	**1,975.0**	**1,975.0**	**1,975.0**	**1,975.0**	**1,975.0**
Interest expense				96.8	96.8	96.8	96.8	96.8
Interest rate				*4.9%*	*4.9%*	*4.9%*	*4.9%*	*4.9%*
Obligations under capital leases due within one year								
Obligations under capital leases due within one year (beginning of year)				326.0	326.0	326.0	326.0	326.0
Mandatory issuances / (retirements)				0.0	0.0	0.0	0.0	0.0
Non-mandatory issuances / (retirements)				0.0	0.0	0.0	0.0	0.0
Obligations under capital leases due within one year (end of year)			**326.0**	**326.0**	**326.0**	**326.0**	**326.0**	**326.0**
Interest expense				27.5	27.5	27.5	27.5	27.5
Interest rate				*8.4%*	*8.4%*	*8.4%*	*8.4%*	*8.4%*
Long-term debt								
Long-term debt (beginning of year)				44,070.0	44,070.0	44,070.0	44,070.0	44,070.0
Mandatory issuances / (retirements)				0.0	0.0	0.0	0.0	0.0
Non-mandatory issuances / (retirements)				0.0	0.0	0.0	0.0	0.0
Long-term debt (end of year)			**44,070.0**	**44,070.0**	**44,070.0**	**44,070.0**	**44,070.0**	**44,070.0**
Interest expense				1,983.0	1,983.0	1,983.0	1,983.0	1,983.0
Interest rate				*4.5%*	*4.5%*	*4.5%*	*4.5%*	*4.5%*
Long-term obligations under capital leases								
Long-term obligations under capital leases (beginning of year)				3,009.0	3,009.0	3,009.0	3,009.0	3,009.0
Mandatory issuances / (retirements)				0.0	0.0	0.0	0.0	0.0

	Actuals			Estimates				
Period Ending January 31	2010A	2011A	2012A	2013E	2010A	2011A	2012A	2013E
Non-mandatory issuances / (retirements)				0.0	0.0	0.0	0.0	0.0
Long-term obligations under capital leases (end of year)			**3,009.0**	**3,009.0**	**3,009.0**	**3,009.0**	**3,009.0**	**3,009.0**
Interest expense				254.1	254.1	254.1	254.1	254.1
Interest rate				*8.4%*	*8.4%*	*8.4%*	*8.4%*	*8.4%*
Total issuances / (retirements)				0.0	0.0	0.0	0.0	0.0
Total interest expense				**2,365.5**	**2,365.5**	**2,365.5**	**2,365.5**	**2,365.5**
Cash at the end of the year			**6,550.0**	**6,928.3**	**8,732.1**	**10,962.2**	**14,074.1**	**18,770.1**
Interest income				168.5	195.8	246.2	313.0	410.6
Interest rate				*2.5%*	*2.5%*	*2.5%*	*2.5%*	*2.5%*
Match? (Y/N)				**Y**	**Y**	**Y**	**Y**	**Y**

See the following example of raising $1, 000 in debt. For purposes of explaining the circular reference, let's just focus on what happens to interest income.

Debt Schedule	
Cash beginning of year	0.0
Cash flow before debt paydown	0.0
Minimum cash	0.0
Long term debt	
Beginning of year	0.0
Issuances	1, 000.0
Interest (@10%)*	100.0
End of year	1, 000.0
Cash at the end of the year	**1, 000.0**
Interest income (@1%)*	10.0

* Note that we are trying to illustrate only the interest income flow, so let's ignore the interest exp ense for now. In order to keep this simple, we did not take the average of beginning and end of year.



Income Statement	
Interest income	10.0
Taxes (@ 40%)	(4.0)
Net Income	6.0

Cash Flow	
Net Income	6.0
Long-term debt issuance	1,000.0
Total Changes in Cash	1,006.0
Cash Flow before Debt Paydown	6.0

So, the interest income flows into the income statement and increases net income (after tax) by $6. Net income flows into the cash flow statement. With the $1, 000 debt issuance, cash increases by $1, 006. However, cash flow before debt paydown excludes the cash from debt issuance, so it only increases by $6. Back to the debt schedule:

Debt Schedule	
Cash beginning of year	0.0
Cash flow before debt paydown	6.0
Minimum cash	0.0
Long term debt	
Beginning of year	0.0
Issuances	1, 000.0
Interest (@10%)*	100.0
End of year	1, 000.0
Cash at the end of the year	**1, 006.0**
Interest income (@1%)*	10.1

* Again, we are trying to illustrate only the interest income flow so let's ignore the interest expense for now. In order to keep this simple, we did not take the average of beginning and end of year.

So because the cash flow before debt paydown has increased by an additional $6, the interest income has increased by $0.1 (really $0.06, but we rounded up to $0.1), and will flow back through the income statement and continue the cycle.

Let's take another example, but this time illustrating with interest expense on the debt.

If debt is paid down in the debt schedule, interest expense will decrease. As interest expense links to the income statement, a reduction in interest expense increases net income. That net income increase flows to the top of the cash flow statement, and increases cash and, more importantly, "Cash flow before debt paydown" at the bottom of the cash flow statement. This cash flow before debt paydown links to the debt schedule and increases the cash available to paydown debt. So, based on the interest savings from paying down debt, we now have a little more cash we can use to pay down more debt. If we do so, interest expense will reduce further, which will reduce net income further, and the cycle will repeat.

See the following example of paying down $1, 000 in debt. For purposes of explaining the circular reference, let's just focus on what happens to interest expense. We will also have to assume we had $1, 000 of cash at the beginning of the year in order to pay down that $1, 000 of debt:

Debt Schedule	
Cash beginning of year	1, 000.0
Cash flow before debt paydown	0.0
Minimum cash	0.0
Long term debt	
Beginning of year	1, 000.0
Issuances	(1, 000.0)
Interest (@10%)*	(100.0)
End of year	0.0
Cash at the end of the year	**0.0**
Interest Income (@1%)*	0.0

*We are illustrating the idea that interest expense has reduced by $100. In order to keep this simple, we did not take the average of beginning and end of year. We are also assuming no interest income to illustrate just the interest expense movements.

Income Statement	
Interest Expense*	(100.0)
Taxes (@ 40%)	40.0
Net Income	**60.0**

Cash Flow	
Net Income	60.0
Long-Term Debt Issuance	(1,000.0)
Total Changes in Cash	**(940.0)**
Cash Flow before Debt Paydown	**60.0**

So, the reduction in interest expense flows into the income statement and increases net income (after tax) by $60. Net income flows into the cash flow statement. With the $1, 000 debt retirement, cash decreases by $940. However, cash flow before debt paydown excludes the cash from debt issuance, so it increases by $60. Now back to the debt schedule.

Debt Schedule	
Cash beginning of year	1, 000.0
Cash flow before debt paydown	60.0
Minimum cash	0.0
Long term debt	
Beginning of year	1, 000.0

Issuances	(1, 000.0)
Interest (@10%)*	(100.0)
End of year	0.0
Cash at the end of the year	**60.0**
Interest income (@1%)*	0.0

*Again, we are illustrating the idea that interest expense has reduced by $100. In order to keep this simple, we did not take the average of beginning and end of year. We are also assuming no interest income to illustrate just the interest expense movements.

We now have $60 dollars more we could use to pay down more debt. We can choose to pay down more debt if we had more debt, reduce interest expense further, which will flow back into the income statement and repeat the cycle.

Technically, since the issuing and paying down of debt is hardcoded in the model, this particular loop is not an endless one. In other words, we have to manually adjust the paydown after each iteration. But we will later look at automatic paydown formulas, which will create an endless loop. Having the Excel iteration setting set to a number such as 100 will limit the iterations.

Circular Reference #Value! Errors

It can often happen at this point in the model that the whole model becomes ridden with #Value! or other errors. This is because of the circular reference and happens when a formula is accidentally mistyped in a cell that is connected to the circular loop. If a particular formula is mistyped in such a way that Excel thinks it is a string as opposed to a number, an error message is produced because Excel cannot make the calculation. If such an error message is produced in the circular reference loop, that error message is caught in the loop, and every cell in its path is affected.

You can try this (don't worry, we have a quick fix) by forcing a cell within the loop to be a string. We can type "test, " for example, in one of the debt issuances cells, let's say G13 in the debt schedule. The model should now be filled with #Value! error messages. If you don't see the error messages right away, try hitting the "F9" key, which is a shortcut to recalculate the Excel model cells. (See Table 6.12)

To repair this, we first need to identify where the error is and fix it. So let's change "test" back to "0." Although this fixes the original mistake, the errors still exist because that #Value! message is caught in the loop. To repair this, we need to break the loop, allow Excel to recalculate as normal, and re-link the loop. An easy way to do this is to look to the interest expense and interest income on the income statement (Rows 27, 28, and 29). (See Table 6.13.)

We can easily highlight and delete these three rows, starting in cell G27, selecting the first row by holding down "Shift, " tapping the space bar once, then selecting the other two rows by holding down "Shift" and tapping the arrow keys down. We can now hit the "Delete" button to erase the links. Excel should recalculate as normal. At this point, we can put those links back in, simply by "undoing" the deletion or typing "Ctrl" + "Z." Everything should be back to normal. (See Table 6.14.)

TABLE 6.12 Debt Schedule #Value! Error

Debt Schedule								
(in U.S.$ millions)	Actuals				Estimates			
Period Ending January 31	2010A	2011A	2012A	2013E	2010A	2011A	2012A	2013E
Cash available to pay down debt								
Cash at beginning of year				6,550.0	#VALUE!	#VALUE!	#VALUE!	#VALUE!
Cash flow before debt paydown				#VALUE!	#VALUE!	#VALUE!	#VALUE!	#VALUE!
Minimum cash cushion				(1,000.0)	(1,000.0)	(1,000.0)	(1,000.0)	(1,000.0)
Total cash available to pay down debt				**#VALUE!**	**#VALUE!**	**#VALUE!**	**#VALUE!**	**#VALUE!**
Short-term borrowings / revolver								
Short-term borrowings (beginning of year)				4,047.0	4,047.0	4,047.0	4,047.0	4,047.0
Mandatory issuances / (retirements)				0.0	0.0	0.0	0.0	0.0
Non-mandatory issuances / (retirements)				0.0	0.0	0.0	0.0	0.0
Short-term borrowings (end of year)			4,047.0	**4,047.0**	**4,047.0**	**4,047.0**	**4,047.0**	**4,047.0**
Short-term interest expense				4.0	4.0	4.0	4.0	4.0
Short-term interest rate				*0.1%*	*0.1%*	*0.1%*	*0.1%*	*0.1%*

TABLE 6.13 Income Statement #Value! Error

Consolidated Income Statements								
(in U.S.$ millions except per share amounts)	Actuals			Estimates				
Period Ending January 31	2010A	2011A	2012A	2013E	2014E	2015E	2016E	2017E
Interest								
Interest expense (debt)	1,787.0	1,928.0	2,034.0	2,083.8	2,083.8	2,083.8	2,083.8	2,083.8
Interest expense (capital leases)	278.0	277.0	288.0	281.6	281.6	281.6	281.6	281.6
Interest income	(181.0)	(201.0)	(162.0)	#VALUE!	#VALUE!	#VALUE!	#VALUE!	#VALUE!
Net interest expense	**1,884.0**	**2,004.0**	**2,160.0**	**#VALUE!**	**#VALUE!**	**#VALUE!**	**#VALUE!**	**#VALUE!**
EBT	**22,118.0**	**23,538.0**	**24,398.0**	**#VALUE!**	**#VALUE!**	**#VALUE!**	**#VALUE!**	**#VALUE!**
EBT margin (%)	*5.4%*	*5.6%*	*5.5%*	*#VALUE!*	*#VALUE!*	*#VALUE!*	*#VALUE!*	*#VALUE!*
Income tax expense	7,156.0	7,579.0	7,944.0	#VALUE!	#VALUE!	#VALUE!	#VALUE!	#VALUE!
Tax rate (%)	*32.4%*	*32.2%*	*32.6%*	*33.0%*	*33.0%*	*33.0%*	*33.0%*	*33.0%*
Net income (adjusted)	**14,962.0**	**15,959.0**	**16,454.0**	**#VALUE!**	**#VALUE!**	**#VALUE!**	**#VALUE!**	**#VALUE!**

TABLE 6.14 Fixed Income Statement

Consolidated Income Statements								
(in U.S.$ millions except per share amounts)	Actuals			Estimates				
Period Ending January 31	2010A	2011A	2012A	2013E	2014E	2015E	2016E	2017E
Interest								
Interest expense (debt)	1,787.0	1,928.0	2,034.0	2,083.8	2,083.8	2,083.8	2,083.8	2,083.8
Interest expense (capital leases)	278.0	277.0	288.0	281.6	281.6	281.6	281.6	281.6
Interest income	(181.0)	(201.0)	(162.0)	(168.5)	(195.8)	(246.2)	(313.0)	(410.6)
Net interest expense	**1,884.0**	**2,004.0**	**2,160.0**	**2,197.0**	**2,169.7**	**2,119.3**	**2,052.5**	**1,954.9**
EBT	**22,118.0**	**23,538.0**	**24,398.0**	**25,691.4**	**27,304.9**	**29,036.6**	**30,885.6**	**32,872.4**
EBT margin (%)	*5.4%*	*5.6%*	*5.5%*	*5%*	*5%*	*5%*	*5%*	*5%*
Income tax expense	7,156.0	7,579.0	7,944.0	8,478.2	9,010.6	9,582.1	10,192.3	10,847.9
Tax rate (%)	*32.4%*	*32.2%*	*32.6%*	*33.0%*	*33.0%*	*33.0%*	*33.0%*	*33.0%*
Net income (adjusted)	**14,962.0**	**15,959.0**	**16,454.0**	**17,213.2**	**18,294.3**	**19,454.5**	**20,693.4**	**22,024.5**

AUTOMATIC DEBT PAYDOWNS

Earlier we discussed the reason for a "Non-mandatory issuances/(retirement)" line item is to automatically pay down debt if there happens to be excess cash, or to raise debt if there is some cash need. Not all businesses choose to or are allowed to pay down debt at will, but let's walk through how to enter such a formula into the model. First, it is important to explain the particular conditions we want such a formula to handle. We want to set up a series of logical conditions that essentially compares a debt balance with cash available to paydown debt. If we have more cash than debt, then we can pay down all of the debt; if we have less cash than debt, then we can only pay down as much cash that we have; if our cash balance is negative, then we need to raise debt to fulfill the cash need. Let's list these into a more formal set of logical conditions:

1. If cash available is negative, then we need to raise cash.

2. If cash available is positive, then:

a) If cash available is greater than debt, then we can pay down the debt.

b) If cash available is less than the debt, then we can only pay down as much cash as we have.

We can then rewrite these conditions as "if . . . then" statements. Taking condition 1, for example: If the cash is negative, we clearly have a cash need and we need to raise cash to fulfill that cash need. So the condition would be:

1. If Cash $<$ 0, then return $-$Cash.

So the "–cash" at the end of the formula literally means to have the output be the negative value of the cash. In other words, if we have $-$\$500 in cash available to pay down debt, then we need to issue \$500 to fill that cash need. So the formula would read $--$\$500 (yes, a double negative), or \$500.

2a.) If Cash $>$ 0, then, if Cash Available $>$ Debt, then return – Debt.

Or if cash is positive, and if we have more cash than debt, then we can pay down the debt. A debt paydown is represented by –Debt, the negative balance of debt.

2b.) If Cash $>$ 0, then, if Cash Available $<$ Debt, then return – Cash.

Or if cash is positive, and if we have less cash then debt, then we can only pay down as much cash as we have. This is represented by the negative cash balance.

Notice conditions 2a and 2b can be satisfied in another way: by taking the minimum balance of cash and debt. Let's take an example for 2a and say cash is \$1, 000 and debt is \$500. In this case, cash is positive and is also greater than debt, so we can certainly pay down all of the debt. So the output will be $-$\$500, or –Debt. Let's now take an example for 2b and say cash is \$1, 000 and debt is \$2, 500. In this case, cash is positive but is less than debt, so we can only pay down as much cash as we have, $-$\$1, 000, or –Cash. In either case we are taking the minimum of the two, cash or debt. And notice in both cases the output is negative of the respective value. So the formula "-Min (Cash, Debt)" will satisfy both of the conditions. What about condition 1, where cash is negative? In this case, "-Min (Cash, Debt)" also satisfies this case. We know that debt can never be negative, so if this is the case where the cash is negative, the negative value (cash) will always be smaller than the positive value (debt). If cash is negative, the formula "-Min (Cash, Debt)" will always give us –Cash, the desired result.

We can now enter this formula into the model if we choose to. In Cell G14 of the debt schedule we can enter:

```
=-min(G10,G12)
```

It is important to understand the details of the formula and how it works so one can adjust the formula to handle different tasks. For example, adding an additional "min" function to the formula can cap how much debt can be raised. This would be helpful if one is modeling a revolver that only has a capacity of \$500, for example. So the formula will look like this:

=min(-(min(cash, debt)),500)

Whatever the negative output is (which will always be a debt paydown) won't be affected, but if there's a debt issuance that becomes greater than $500, that outer "min" function will prevent it from going beyond the 500.

BASIC SWITCHES

It is also helpful to put in a simple "switch" to be able to turn on or off the use of this "min" formula. We can do this by simply multiplying the formula by a "1" or "0." Multiplying any formula by "0" will always produce "0", so the formula will be turned off; multiplying any formula by "1" will not change the output of the formula, so it will be turned on. So, for example, we can type a "1" in Cell F14. We can also append the formula in G14 to add "*$F$14, " making sure to add dollar signs around the reference to F14, so that we can copy the formula to the right without affecting the reference to F14. The formula in G14 should read "=-min(G10, G12)*$F$14." Now, if we type "0" into Cell F14, the formula will read "0" and be turned off. If we type "1" into Cell F14, the formula will read "1" and be turned on. Let's keep the formula switched off.

FIGURE 6.3 Yahoo! Finance WMT Estimates

FINALIZING THE MODEL

Now that the core model is complete, it is important to step back and take a high-level look at the output. Let's start with earnings per share (EPS). In the early stages of the modeling process, we took a look at the "Analyst Estimates" section in Yahoo! Finance, which gives us an average of revenue and EPS estimates across the Street (shown in Figure 6.3). Although we used this to ensure our revenue estimates were in line with the street, we mentioned that, without a complete

income statement (depreciation and interest were not complete), we could not yet look at EPS.

TABLE 6.15 Consolidated Income Statements

Consolidated Income Statements (in U.S.$ millions except per share amounts)	Actuals			Estimates				
Period Ending January 31	2010A	2011A	2012A	2013E	2014E	2015E	2016E	2017E
Revenue								
Net sales	405,132.0	418,952.0	443,854.0					
% Growth		*3.4%*	*5.9%*					
Membership and other income	2,953.0	2,897.0	3,096.0					
% Growth		*−1.9%*	*6.9%*					
Total revenue	**408,085.0**	**421,849.0**	**446,950.0**	**473,767.0**	**497,455.4**	**517,353.6**	**532,874.2**	**543,531.7**
Y/Y revenue growth (%)		*3.4%*	*6.0%*	*6.0%*	*5.0%*	*4.0%*	*3.0%*	*2.0%*

Here are some basic steps to determine if our numbers are in line with the Street:

1. Revenue. The basic rule for determining if the projections are in line with the Street is to first make sure revenue is similar to Street estimates. As discussed when projecting revenue, our Walmart projection in 2013 of $473, 767 looks very close to the $472.5Bn average suggested in the Street average. However, 2014 looks a little high. Earlier we had assumed if 6 percent was the expected growth in 2013, we could just carry that same assumption across for simplicity. Now we can get into a little more detail. In the far right column of the "Revenue Est" section located in Figure 6.3, there is an estimated sales growth showing 5 percent for 2014, a decrease from 2013. If the Street is projecting the sales to slowly decline, let's do the same. For now, we can have the revenue scale down by one percentage each year from 6 percent to 2 percent. So we can hardcode 5% in cell H12, overwriting the 6%, 4% in I12, 3% in J12 and 2% in K12.

We can immediately see that our 2014 estimates have lowered to $497, 455.4, much closer in line with the Street average of $496.2Bn. Again, it is recommended to do more extensive research to better hone in on these projections.

2. EPS. We then look at EPS. If the EPS is much lower or much higher than the Street even though revenue is in line, then there must be a difference in our cost assumptions. Our 2013 Projected EPS is 4.91, within the low and high range of 4.84 to 5.01 provided in Figure 6.3. If our EPS had been out of the range, we may want to consider further researching and adjusting some of the major variables and assumptions driving the EPS estimates. For example:

a. Taxes. Looking up from EPS, comparing our projected metrics with the historical metrics is a good way to see where major shifts could be. This could serve as a clue for what may be different. Unless the company has had very unusual tax activity, there should not be any major shift to the future tax levels versus the historical. Walmart's tax is projected to be $8, 478.2 in 2013 and seems fairly in line with historicals. However, we do notice our assumption of 33 percent is slightly higher than the 32.6 percent it has actually been paying. It is up to the analyst whether those assumptions should be lowered; we like to be slightly conservative, so we will stick to the 33 percent. (See Table 6.16.)

TABLE 6.16 Consolidated Income Statements

Consolidated Income Statements (in U.S.$ millions except per share amounts)	Actuals			Estimates				
Period Ending January 31	2010A	2011A	2012A	2013E	2014E	2015E	2016E	2017E
Income tax expense	7,156.0	7,579.0	7,944.0	8,478.2	8,891.3	9,205.7	9,404.6	9,481.0
Tax rate (%)	*32.4%*	*32.2%*	*32.6%*	*33.0%*	*33.0%*	*33.0%*	*33.0%*	*33.0%*
Net income (adjusted)	14,962.0	15,959.0	16,454.0	17,213.2	18,052.0	18,690.3	19,094.2	19,249.3

b. Net Interest. As discussed in the debt schedule, unless the company has made major announcements, there should not be a significant drop in or increase to the interest expense or interest income. Our net interest seems fairly in line with the historicals. (See Table 6.17.)

c. Depreciation. As discussed in the depreciation schedule, unless the company has made major announcements, there should not be a significant drop in or increase to the depreciation expense. (See Table 6.18.)

d. COGS and Operating Expenses. This is where there can be major variability in assumptions. If everything else is in line, yet the EPS is still slightly off, then the Street may be suggesting some increase or decrease to the COGS or operating expenses. Notice if we lower the 2013 "COGS as a % of revenue" from 75 percent to 74 percent, the EPS increases dramatically from $4.91 to $5.82. That's a huge jump. This is where we would again recommend some significant research to determine if the company is taking any initiatives to reduce future costs.

In summary, as our EPS is in line with estimates, we do not need to make many adjustments here. We also note that our 2014 EPS estimate of $5.30 is also within the street range of $4.78–$5.68. Also, please note that Yahoo! Finance is by no means a benchmark, and its data can change quite often. It is, however, a good "sanity" check.

We have the complete model in the following pages for reference. (See Tables 6.19 to 6.24.)

We are done with the model and can move on to valuing the business.

TABLE 6.17 Consolidated Income Statements

Consolidated Income Statements (in U.S.$ millions except per share amounts)	Actuals			Estimates				
Period Ending January 31	2010A	2011A	2012A	2013E	2014E	2015E	2016E	2017E
Interest								
Interest expense (debt)	1,787.0	1,928.0	2,034.0	2,083.8	2,083.8	2,083.8	2,083.8	2,083.8
Interest expense (capital leases)	278.0	277.0	288.0	281.6	281.6	281.6	281.6	281.6
Interest income	(181.0)	(201.0)	(162.0)	(168.5)	(193.3)	(234.6)	(281.8)	(344.9)
Net interest expense	1,884.0	2,004.0	2,160.0	2,197.0	2,172.1	2,130.8	2,083.7	2,020.5

TABLE 6.18 Consolidated Income Statements

Consolidated Income Statements (in U.S.$ millions except per share amounts)	Actuals			Estimates				
Period Ending January 31	2010A	2011A	2012A	2013E	2014E	2015E	2016E	2017E
Depreciation and amortization	7,157.0	7,641.0	8,130.0	8,591.7	9,188.6	9,809.4	10,448.9	11,101.1

TABLE 6.19 Walmart Consolidated Income Statements

Consolidated Income Statements (in U.S.$ millions except per share amounts)	Actuals			Estimates				
Period Ending January 31	**2010A**	**2011A**	**2012A**	**2013E**	**2014E**	**2015E**	**2016E**	**2017E**
Revenue								
Net sales	405,132.0	418,952.0	443,854.0					
% Growth		*3.4%*	*5.9%*					
Membership and other income	2,953.0	2,897.0	3,096.0					
% Growth		*–1.9%*	*6.9%*					
Total revenue	**408,085.0**	**421,849.0**	**446,950.0**	**473,767.0**	**497,455.4**	**517,353.6**	**532,874.2**	**543,531.7**
Y/Y revenue growth (%)		*3.4%*	*6.0%*	*6.0%*	*5.0%*	*4.0%*	*3.0%*	*2.0%*
Cost of goods sold								
Cost of goods sold	304,106.0	314,946.0	335,127.0	355,325.3	373,091.5	388,015.2	399,655.6	407,648.7
COGS as a % of revenue	*74.5%*	*74.7%*	*75.0%*	*75.0%*	*75.0%*	*75.0%*	*75.0%*	*75.0%*
Gross profit	**103,979.0**	**106,903.0**	**111,823.0**	**118,441.8**	**124,363.8**	**129,338.4**	**133,218.5**	**135,882.9**
Gross profit margin (%)	*25.5%*	*25.3%*	*25.0%*	*25.0%*	*25.0%*	*25.0%*	*25.0%*	*25.0%*
Operating expenses								
Selling, general and administrative	72,820.0	73,720.0	77,135.0	81,961.7	86,059.8	89,502.2	92,187.2	94,031.0
SG&A as a % of revenue	*17.8%*	*17.5%*	*17.3%*	*17.3%*	*17.3%*	*17.3%*	*17.3%*	*17.3%*
EBITDA	**31,159.0**	**33,183.0**	**34,688.0**	**36,480.1**	**38,304.1**	**39,836.2**	**41,031.3**	**41,851.9**
EBITDA margin (%)	*7.6%*	*7.9%*	*7.8%*	*7.7%*	*7.7%*	*7.7%*	*7.7%*	*7.7%*
Depreciation and amortization	7,157.0	7,641.0	8,130.0	8,591.7	9,188.6	9,809.4	10,448.9	11,101.1
EBIT	**24,002.0**	**25,542.0**	**26,558.0**	**27,888.4**	**29,115.5**	**30,026.8**	**30,582.4**	**30,750.8**
EBIT margin (%)	*5.9%*	*6.1%*	*5.9%*	*5.9%*	*5.9%*	*5.8%*	*5.7%*	*5.7%*
Interest								
Interest expense (debt)	1,787.0	1,928.0	2,034.0	2,083.8	2,083.8	2,083.8	2,083.8	2,083.8
Interest expense (capital leases)	278.0	277.0	288.0	281.6	281.6	281.6	281.6	281.6
Interest income	(181.0)	(201.0)	(162.0)	(168.5)	(193.3)	(234.6)	(281.8)	(344.9)
Net interest expense	**1,884.0**	**2,004.0**	**2,160.0**	**2,197.0**	**2,172.1**	**2,130.8**	**2,083.7**	**2,020.5**
EBT	**22,118.0**	**23,538.0**	**24,398.0**	**25,691.4**	**26,943.3**	**27,896.0**	**28,498.8**	**28,730.3**
EBT margin (%)	*5.4%*	*5.6%*	*5.5%*	*5%*	*5%*	*5%*	*5%*	*5%*
Income tax expense	7,156.0	7,579.0	7,944.0	8,478.2	8,891.3	9,205.7	9,404.6	9,481.0
Tax rate (%)	*32.4%*	*32.2%*	*32.6%*	*33.0%*	*33.0%*	*33.0%*	*33.0%*	*33.0%*
Net income (adjusted)	**14,962.0**	**15,959.0**	**16,454.0**	**17,213.2**	**18,052.0**	**18,690.3**	**19,094.2**	**19,249.3**

Non-recurring events								
Discontinued operations	(79.0)	1,034.0	(67.0)	0.0	0.0	0.0	0.0	0.0
Other	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total non-recurring events	(79.0)	1,034.0	(67.0)	0.0	0.0	0.0	0.0	0.0
Net income (after non-recurring events)	14,883.0	16,993.0	16,387.0	17,213.2	18,052.0	18,690.3	19,094.2	19,249.3
Distributions								
Income attributable to non-controlling interests	(513.0)	(604.0)	(688.0)	(723.0)	(758.2)	(785.0)	(802.0)	(808.5)
Non-controlling interests % of net income	*3.4%*	*3.6%*	*4.2%*	*4.2%*	*4.2%*	*4.2%*	*4.2%*	*4.2%*
Net income (as reported)	14,370.0	16,389.0	15,699.0	16,490.3	17,293.8	17,905.3	18,292.2	18,440.8
Earnings per share (EPS)								
Basic	3.72	4.48	4.54	4.91	5.30	5.66	5.97	6.22
Diluted	3.71	4.47	4.52	4.90	5.29	5.65	5.96	6.21
Average common shares outstanding								
Basic	3,866	3,656	3,460	3,361	3,262	3,163	3,064	2,965
Diluted	3,877	3,670	3,474	3,366	3,267	3,168	3,069	2,970
Shares repurchased					99	99	99	99

TABLE 6.20 Walmart Consolidated Statement of Cash Flows

Consolidated Statements of Cash Flows								
(in U.S.$ millions)	Actuals			Estimates				
Period Ending January 31	**2010A**	**2011A**	**2012A**	**2013E**	**2014E**	**2015E**	**2016E**	**2017E**
Cash flows from operating activities								
Net income	14,883.0	16,993.0	16,387.0	17,213.2	18,052.0	18,690.3	19,094.2	19,249.3
Loss (income) from discontinued operations	79.0	(1,034.0)	67.0	0.0	0.0	0.0	0.0	0.0
Depreciation and amortization	7,157.0	7,641.0	8,130.0	8,591.7	9,188.6	9,809.4	10,448.9	11,101.1
Deferred income taxes	(504.0)	651.0	1,050.0	715.9	1,003.5	791.0	596.3	411.4
Other operating activities	318.0	1,087.0	398.0	318.0	318.0	318.0	318.0	318.0
Changes in operating working capital								
Changes in accounts receivable	(297.0)	(733.0)	(796.0)	146.5	(289.5)	(243.2)	(189.7)	(130.3)
Changes in inventory	2,213.0	(3,205.0)	(3,727.0)	(148.4)	(2,043.1)	(1,716.2)	(1,338.7)	(919.2)
Changes in prepaid expenses and other	0.0	0.0	0.0	(773.9)	(122.9)	(103.3)	(80.6)	(55.3)
Changes in accounts payable	1,052.0	2,676.0	2,687.0	701.2	1,865.5	1,567.0	1,222.2	839.3
Changes in accrued liabilities	1,348.0	(433.0)	59.0	1,425.7	979.0	822.3	641.4	440.5
Changes in accrued income taxes	0.0	0.0	0.0	(459.8)	34.3	26.1	16.5	6.3
Net changes in operating working capital	**4,316.0**	**(1,695.0)**	**(1,777.0)**	**891.3**	**423.2**	**352.8**	**271.3**	**181.3**

Total cash flows from operating activities	**26,249.0**	**23,643.0**	**24,255.0**	**27,730.1**	**28,985.3**	**29,961.5**	**30,728.7**	**31,261.1**
Cash flows from investing activities								
Payments for property and equipment (CAPEX)	(12,184.0)	(12,699.0)	(13,510.0)	(14,213.0)	(14,923.7)	(15,520.6)	(15,986.2)	(16,305.9)
CAPEX % of Revenue	*3.0%*	*3.0%*	*3.0%*	*3.0%*	*3.0%*	*3.0%*	*3.0%*	*3.0%*
Proceeds from disposal of property and equipment	1,002.0	489.0	580.0	0.0	0.0	0.0	0.0	0.0
Investments and business acquisitions, net of cash acquired	0.0	(202.0)	(3,548.0)	0.0	0.0	0.0	0.0	0.0
Other investing activities	(438.0)	219.0	(131.0)	(438.0)	219.0	(131.0)	(438.0)	219.0
Total cash from investing activities	**(11,620.0)**	**(12,193.0)**	**(16,609.0)**	**(14,651.0)**	**(14,704.7)**	**(15,651.6)**	**(16,424.2)**	**(16,086.9)**
Cash flows from financing activities								
Short-term borrowings (repayments)	(1,033.0)	503.0	3,019.0	0.0	0.0	0.0	0.0	0.0
Long-term borrowings (repayments)	(487.0)	7,316.0	466.0	0.0	0.0	0.0	0.0	0.0
Long-term debt due within one year	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Obligations under capital leases due within one year	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Dividends paid	(4,217.0)	(4,437.0)	(5,048.0)	(5,344.7)	(5,187.3)	(5,029.9)	(4,872.5)	(4,715.1)
Dividends paid ($/share)				*$1.59*	*$1.59*	*$1.59*	*$1.59*	*$1.59*

	Actuals			Estimates				
Period Ending January 31	**2010A**	**2011A**	**2012A**	**2013E**	**2014E**	**2015E**	**2016E**	**2017E**
Purchase of common stock [treasury stock]	(7,276.0)	(14,776.0)	(6,298.0)	(7,308.2)	(7,308.2)	(7,308.2)	(7,308.2)	(7,308.2)
Purchase of redeemable noncontrolling interest	(436.0)	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Capital lease obligations	(346.0)	(363.0)	(355.0)	0.0	0.0	0.0	0.0	0.0
Other	(396.0)	(271.0)	(242.0)	(242.0)	(242.0)	(242.0)	(242.0)	(242.0)
Total cash from financing activities	**(14,191.0)**	**(12,028.0)**	**(8,458.0)**	**(12,894.9)**	**(12,737.5)**	**(12,580.1)**	**(12,422.6)**	**(12,265.2)**
Effect of exchange rate on cash	194.0	66.0	(33.0)	194.0	66.0	(33.0)	194.0	66.0
Total change in cash and cash equivalents	**632.0**	**(512.0)**	**(845.0)**	**378.3**	**1,609.2**	**1,696.8**	**2,075.8**	**2,974.9**
SUPPLEMENTAL DATA:								
Cash flow before debt paydown				378.3	1,609.2	1,696.8	2,075.8	2,974.9

TABLE 6.21 Walmart Consolidated Balance Sheets

Consolidated Balance Sheets								
(in U.S.$ millions)	Actuals			Estimates				
On January 31	**2010A**	**2011A**	**2012A**	**2013E**	**2014E**	**2015E**	**2016E**	**2017E**
Assets								
Current assets:								
Cash and cash equivalents		7,395.0	6,550.0	6,928.3	8,537.4	10,234.2	12,310.0	15,285.0
Receivables, net		5,089.0	5,937.0	5,790.5	6,080.0	6,323.2	6,512.9	6,643.2
Inventories		36,437.0	40,714.0	40,862.4	42,905.5	44,621.7	45,960.4	46,879.6
Prepaid expenses and other		2,960.0	1,685.0	2,458.9	2,581.8	2,685.1	2,765.6	2,820.9
Other current assets (discontinued operations)		131.0	89.0	89.0	89.0	89.0	89.0	89.0
Total current assets		**52,012.0**	**54,975.0**	**56,129.0**	**60,193.8**	**63,953.3**	**67,638.0**	**71,717.7**
Property, plant and equipment, net		107,878.0	112,324.0	117,945.3	123,680.4	129,391.6	134,928.9	140,133.7
Goodwill		16,763.0	20,651.0	20,651.0	20,651.0	20,651.0	20,651.0	20,651.0
Other assets and deferred charges		4,129.0	5,456.0	5,576.0	5,039.0	4,852.0	4,972.0	4,435.0
Total assets		**180,782.0**	**193,406.0**	**200,301.3**	**209,564.2**	**218,847.8**	**228,189.9**	**236,937.4**
Liabilities								
Current liabilities:								
Short-term borrowings		1,031.0	4,047.0	4,047.0	4,047.0	4,047.0	4,047.0	4,047.0
Accounts payable		33,676.0	36,608.0	37,309.2	39,174.6	40,741.6	41,963.8	42,803.1
Accrued liabilities		18,701.0	18,154.0	19,579.7	20,558.7	21,381.1	22,022.5	22,463.0
Accrued income taxes		157.0	1,164.0	704.2	738.5	764.6	781.1	787.4
Long-term debt due within one year		4,655.0	1,975.0	1,975.0	1,975.0	1,975.0	1,975.0	1,975.0

	Actuals			Estimates				
On January 31	2010A	2011A	2012A	2013E	2014E	2015E	2016E	2017E
Obligations under capital leases due within one year		336.0	326.0	326.0	326.0	326.0	326.0	326.0
Current liabilities of discontinued operations		47.0	26.0	26.0	26.0	26.0	26.0	26.0
Total current liabilities		**58,603.0**	**62,300.0**	**63,967.0**	**66,845.8**	**69,261.2**	**71,141.4**	**72,427.5**
Long-term debt		40,692.0	44,070.0	44,070.0	44,070.0	44,070.0	44,070.0	44,070.0
Long-term obligations under capital leases		3,150.0	3,009.0	3,009.0	3,009.0	3,009.0	3,009.0	3,009.0
Deferred income taxes and other		6,682.0	7,862.0	8,577.9	9,581.4	10,372.4	10,968.7	11,380.2
Redeemable noncontrolling interest		408.0	404.0	404.0	404.0	404.0	404.0	404.0
Total liabilities		**109,535.0**	**117,645.0**	**120,028.0**	**123,910.2**	**127,116.7**	**129,593.2**	**131,290.7**
Shareholders' equity								
Common stock par value + additional paid-in-capital		3,929.0	4,034.0	4,034.0	4,034.0	4,034.0	4,034.0	4,034.0
Retained earnings		63,967.0	68,691.0	73,251.4	78,807.9	85,160.2	92,073.7	99,299.7
Accumulated other comprehensive income (loss)		646.0	(1,410.0)	(1,458.0)	(1,634.0)	(1,909.0)	(1,957.0)	(2,133.0)
Total shareholders' equity		**68,542.0**	**71,315.0**	**75,827.4**	**81,207.9**	**87,285.2**	**94,150.7**	**101,200.7**
Noncontrolling interest		2,705.0	4,446.0	4,446.0	4,446.0	4,446.0	4,446.0	4,446.0
Total liabilities & equity		**180,782.0**	**193,406.0**	**200,301.3**	**209,564.2**	**218,847.8**	**228,189.9**	**236,937.4**
SUPPLEMENTAL DATA:								
Balance? (Y/N)		**Y**	**Y**	**Y**	**Y**	**Y**	**Y**	**Y**

TABLE 6.22 Walmart Depreciation Schedule

Depreciation								
(in U.S.$ millions)	Actuals			Estimates				
Period Ending January 31	2010A	2011A	2012A	2013E	2014E	2015E	2016E	2017E
Property, plant & equipment (beg. of year)				**112,324.0**				
Capital expenditures (beg. of year)				**14,213.0**	**14,923.7**	**15,520.6**	**15,986.2**	**16,305.9**
Book (GAAP) depreciation								
Useful Life								
PP&E Years				**14**				
CAPEX Years				**25**	**25**	**25**	**25**	**25**
Depreciation								
Existing PP&E				8,023.1	8,023.1	8,023.1	8,023.1	8,023.1
2013 CAPEX				568.5	568.5	568.5	568.5	568.5
2014 CAPEX					596.9	596.9	596.9	596.9
2015 CAPEX						620.8	620.8	620.8
2016 CAPEX							639.4	639.4
2017 CAPEX								652.2
Total book depreciation				**8,591.7**	**9,188.6**	**9,809.4**	**10,448.9**	**11,101.1**

	Actuals			Estimates				
Period Ending January 31	2010A	2011A	2012A	2013E	2014E	2015E	2016E	2017E
Accelerated depreciation (%)								
Existing PP&E				8.75%	9.13%	8.21%	7.39%	6.65%
2013 CAPEX				6.56%	7.00%	6.48%	6.00%	5.55%
2014 CAPEX					6.56%	7.00%	6.48%	6.00%
2015 CAPEX						6.56%	7.00%	6.48%
2016 CAPEX							6.56%	7.00%
2017 CAPEX								6.56%
Accelerated depreciation								
Existing PP&E				9,828.4	10,255.2	9,221.8	8,300.7	7,469.5
2013 CAPEX				932.8	994.9	921.3	852.2	788.3
2014 CAPEX					979.4	1,044.7	967.4	894.8
2015 CAPEX						1,018.6	1,086.4	1,006.0
2016 CAPEX							1,049.2	1,119.0
2017 CAPEX								1,070.2
Total tax depreciation				**10,761.1**	**12,229.5**	**12,206.4**	**12,255.9**	**12,347.9**
Difference in depreciation				2,169.5	3,040.9	2,396.9	1,807.0	1,246.7
Tax rate (%)				*33%*	*33%*	*33%*	*33%*	*33%*
Deferred taxes				**715.9**	**1,003.5**	**791.0**	**596.3**	**411.4**

TABLE 6.23 Walmart Operating Working Capital Schedule

Operating Working Capital Schedule (OWC)								
(in U.S.$ millions)	Actuals			Estimates				
On January 31	2010A	2011A	2012A	2013E	2014E	2015E	2016E	2017E
Current assets								
Receivables, net		5,089.0	5,937.0	5,790.5	6,080.0	6,323.2	6,512.9	6,643.2
Days receivable			*4.4*	*4.4*	*4.4*	*4.4*	*4.4*	*4.4*
Inventories		36,437.0	40,714.0	40,862.4	42,905.5	44,621.7	45,960.4	46,879.6
Inventory turnover days			*41.4*	*41.4*	*41.4*	*41.4*	*41.4*	*41.4*
Prepaid expenses and other		2,960.0	1,685.0	2,458.9	2,581.8	2,685.1	2,765.6	2,820.9
Days prepaid			*10.8*	*10.8*	*10.8*	*10.8*	*10.8*	*10.8*
Total current assets		**44,486.0**	**48,336.0**	**49,111.7**	**51,567.3**	**53,630.0**	**55,238.9**	**56,343.7**
Current liabilities								
Accounts payable		33,676.0	36,608.0	37,309.2	39,174.6	40,741.6	41,963.8	42,803.1
Days payable			*37.8*	*37.8*	*37.8*	*37.8*	*37.8*	*37.8*
Accrued liabilities		18,701.0	18,154.0	19,579.7	20,558.7	21,381.1	22,022.5	22,463.0
Days payable			*86.0*	*86.0*	*86.0*	*86.0*	*86.0*	*86.0*
Accrued taxes		157.0	1,164.0	704.2	738.5	764.6	781.1	787.4
Days Payable			*29.9*	*29.9*	*29.9*	*29.9*	*29.9*	*29.9*
Total current liabilities		**52,534.0**	**55,926.0**	**57,593.0**	**60,471.8**	**62,887.2**	**64,767.4**	**66,053.5**
Total operating working capital		**(8,048.0)**	**(7,590.0)**	**(8,481.3)**	**(8,904.5)**	**(9,257.2)**	**(9,528.5)**	**(9,709.8)**
Change in total operating working capital				(891.3)	(423.2)	(352.8)	(271.3)	(181.3)
Match? (Y/N)				**Y**	**Y**	**Y**	**Y**	**Y**

TABLE 6.24 Walmart Debt Schedule

Debt Schedule								
(in U.S.$ millions)		Actuals				Estimates		
Period Ending January 31	2010A	2011A	2012A	2013E	2014E	2015E	2016E	2017E
Cash available to pay down debt								
Cash at beginning of year				6,550.0	6,928.3	8,537.4	10,234.2	12,310.0
Cash flow before debt paydown				378.3	1,609.2	1,696.8	2,075.8	2,974.9
Minimum cash cushion				(1,000.0)	(1,000.0)	(1,000.0)	(1,000.0)	(1,000.0)
Total cash available to pay down debt				**5,928.3**	**7,537.4**	**9,234.2**	**11,310.0**	**14,285.0**
Short-term borrowings / revolver								
Short-term borrowings (beginning of year)				4,047.0	4,047.0	4,047.0	4,047.0	4,047.0
Mandatory issuances / (retirements)				0.0	0.0	0.0	0.0	0.0
Non-mandatory issuances / (retirements)			0.0	0.0	0.0	0.0	0.0	0.0
Short-term borrowings (end of year)			**4,047.0**	**4,047.0**	**4,047.0**	**4,047.0**	**4,047.0**	**4,047.0**
Short-term interest expense				4.0	4.0	4.0	4.0	4.0
Short-term interest rate				*0.1%*	*0.1%*	*0.1%*	*0.1%*	*0.1%*
Long-term debt due within one year								
Long-term debt due within one year (beginning of year)				1,975.0	1,975.0	1,975.0	1,975.0	1,975.0
Mandatory issuances / (retirements)				0.0	0.0	0.0	0.0	0.0
Non-mandatory issuances / (retirements)				0.0	0.0	0.0	0.0	0.0
Long-term debt due within one year (end of year)			**1,975.0**	**1,975.0**	**1,975.0**	**1,975.0**	**1,975.0**	**1,975.0**
Interest expense				96.8	96.8	96.8	96.8	96.8
Interest rate				*4.9%*	*4.9%*	*4.9%*	*4.9%*	*4.9%*
Obligations under capital leases due within one year								
Obligations under capital leases due within one year (beginning of year)				326.0	326.0	326.0	326.0	326.0
Mandatory issuances / (retirements)				0.0	0.0	0.0	0.0	0.0
Non-mandatory issuances / (retirements)				0.0	0.0	0.0	0.0	0.0
Obligations under capital leases due within one year (end of year)			**326.0**	**326.0**	**326.0**	**326.0**	**326.0**	**326.0**
Interest expense				27.5	27.5	27.5	27.5	27.5
Interest rate				*8.4%*	*8.4%*	*8.4%*	*8.4%*	*8.4%*
Long-term debt								
Long-term debt (beginning of year)				44,070.0	44,070.0	44,070.0	44,070.0	44,070.0
Mandatory issuances / (retirements)				0.0	0.0	0.0	0.0	0.0
Non-mandatory issuances / (retirements)				0.0	0.0	0.0	0.0	0.0
Long-term debt (end of year)			**44,070.0**	**44,070.0**	**44,070.0**	**44,070.0**	**44,070.0**	**44,070.0**
Interest expense				1,983.0	1,983.0	1,983.0	1,983.0	1,983.0
Interest rate				*4.5%*	*4.5%*	*4.5%*	*4.5%*	*4.5%*
Long-term obligations under capital leases								
Long-term obligations under capital leases (beginning of year)				3,009.0	3,009.0	3,009.0	3,009.0	3,009.0

		Actuals				Estimates		
Period Ending January 31	2010A	2011A	2012A	2013E	2014E	2015E	2016E	2017E
Mandatory issuances / (retirements)				0.0	0.0	0.0	0.0	0.0
Non-mandatory issuances / (retirements)				0.0	0.0	0.0	0.0	0.0
Long-term obligations under capital leases (end of year)			**3,009.0**	**3,009.0**	**3,009.0**	**3,009.0**	**3,009.0**	**3,009.0**
Interest expense				254.1	254.1	254.1	254.1	254.1
Interest rate				*8.4%*	*8.4%*	*8.4%*	*8.4%*	*8.4%*
Total issuances / (retirements)				**0.0**	**0.0**	**0.0**	**0.0**	**0.0**
Total interest expense				**2,365.5**	**2,365.5**	**2,365.5**	**2,365.5**	**2,365.5**
Cash at the end of the year			**6,550.0**	**6,928.3**	**8,537.4**	**10,234.2**	**12,310.0**	**15,285.0**
Interest income				168.5	193.3	234.6	281.8	344.9
Interest rate				*2.5%*	*2.5%*	*2.5%*	*2.5%*	*2.5%*
Match? (Y/N)				**Y**	**Y**	**Y**	**Y**	**Y**

When this circular reference is created, an error message may pop up in Excel. Excel automatically assumes circular references in a model are errors. We need to adjust a setting in Excel to explain that we want the circular reference in the model. When doing so, we need to tell Excel how many of these circular iterations we want it to go through before stopping, as, theoretically, this loop can go on forever.

a) Excel 2010. If you are using Excel 2010, you can find the Excel settings by selecting “File” in the menu bar, then “Options” at the bottom.

b) Excel 2007. In Excel 2007, you can find the Excel settings by selecting the circular Microsoft Office icon at the top left of the Excel program, and you will find the “Excel Settings” button at the bottom.

Once the setting box pops open, select, “Formulas, ” which should reveal a “Calculation options” section. Within this section there should be a selection box titled “Enable iterative calculations.” Checking this box tells Excel to allow circular references. Once the box is checked, we can tell Excel how many iterations we want Excel to cycle through. One hundred iterations are enough.

PART Two

Valuation

Valuation is crucial in investment banking. How much is this entity worth? What is the appropriate price of this stock? We will take a look at Walmart, analyze its financial standing, and determine if the stock is overvalued or undervalued as done by Wall Street analysts.

The goals of this section are:

1. Understanding valuation
    a. Multiples
    b. Comparable company analysis
    c. Precedent transactions analysis
    d. Discounted cash flow analysis
2. Ability to build a complete valuation of Walmart

As a disclaimer, there are a lot of excellent valuation books. This section does not set out to be a complete and thorough explanation of valuation. Rather, it is meant to be a practical methodology towards utilizing valuation. We will go through a basic understanding of valuation and the concepts, but a deep discussion of the ever-changing theories and the proofs of such is beyond the scope of this book.

CHAPTER 7

What Is Value?

The most important question before even getting into valuation techniques is this: What is value? To help answer this question we note there are two major categories of value:

1. **Book Value.** Book value is the value of an asset or entire business entity as determined by its books, or the financials.
2. **Market Value.** Market value is the value as determined by the market.

BOOK VALUE

The book value can be determined by the balance sheet. The total book value of a company's property, for example, can be found under the net PP&E in the assets section of the balance sheet. The book value of the shareholder's interest in the company (not including the minority interest holder) can be found under shareholder's equity. Walmart's shareholder's equity value of $71, 315 is the book value of its equity to the shareholders.

MARKET VALUE

The market value can be defined by its market capitalization, or shares outstanding times share price. Walmart, which is currently trading at $73.82 and has 3, 365.7MM diluted shares outstanding (see Chapter 1 on diluting shares), has a market capitalization of $248, 459.0 MM. This is Walmart's market value.

These values represent the equity value of a business. The equity value of a business is the value of the business attributable to just equity holders; that is, the value of the business excluding debt lenders, minority interest holders, and other obligations.

Shareholders' equity, for example, is a value of the company's assets less the value of the company's liabilities. So this shareholders' equity value (making sure non-controlling interest is not included in shareholders' equity) is the value of the business excluding lenders and other obligations; an equity value. The market value, or market capitalization, is based on the stock price, which is inherently an equity value as equity investors value a company's stock excluding debt lenders and other obligations.

ENTERPRISE VALUE

Enterprise value (also known as firm value) is defined as the value of the entire business including debt lenders and other obligations. We will see why, the importance of enterprise value is that it approaches an approximate value of the operating assets of an entity. To be more specific “Debt lenders and other obligations” can include short-term debts, long term debts, current portion of long-term debts, capital lease obligations, preferred securities, non-controlling interests, and other non-operating liabilities (e.g. unallocated pension funds). So, for complete reference, enterprise value can be calculated as:

Equity value

+ Short-term debts
+ Long-term debts
+ Current portion of long-term debts
+ Capital lease obligations
+ Preferred securities
+ Non-controlling interests
+ Other non-operating liabilities (e.g. unallocated pension funds)
− Cash and cash equivalents

We will explain why subtracting cash and cash equivalents is significant. So, to arrive at enterprise value on a book value basis, we take the shareholders’ equity and add back any potential debts and obligations less cash and cash equivalents. Similarly if we add to market capitalization any potential debts and obligations less cash and cash equivalents, we approach the enterprise value of a company on a market value basis.

Here is a quick recap:

Valuation Categories	**Book Value**	**Market Value**
Equity Value	Shareholders’ Equity	Market Capitalization
Enterprise Value	Shareholders’ Equity + Any potential debts and obligations* less cash and cash equivalents	Market Capitalization + Any potential debts and obligations* less cash and cash equivalents

*Note: This can include short-term debts, long-term debts, current portion of long-term debts, capital lease obligations, preferred securities, non-controlling interests, other non-operating liabilities (e.g., unallocated pension funds).

Let’s take the example of a company that has a shareholders’ equity of $10MM as per its balance sheet. Let’s also say it has $5MM in total liabilities. We will assume no minority interest holders in these examples to better illustrate the main idea. As per the balance sheet formula (where Assets = Liabilities + Shareholder’s Equity), the total value of the company’s assets is $15MM. So $10MM is the book equity value of the company.

Book Value

Let's now say the company trades in the market at a premium to its book equity value; the market capitalization of the company is $12MM. The market capitalization of a company is an important value, because it is current; it is the value of a business as determined by the investor (share price $\times$ shares outstanding). When we the take the market capitalization and add the total liabilities of $5MM, we get a value that represents the value of the company's total assets as determined by the investor.

Market Value

However, in valuation we typically take market capitalization or book value and add back not the total liabilities, but just debts and obligations as noted above to get to enterprise value. The balance sheet formula can help us explain why:

$$\text{Shareholders' Equity} + \text{Liabilities} = \text{Assets}$$

Using this equation let's list the actual balance sheet items:

Shareholders' Equity [or Market Capitalization] + Accounts Payable + Accrued Expenses + Short-Term Debt + Long-Term Debt = Cash + Accounts Receivable + Inventory + Property, Plant, and Equipment

To better illustrate the theory, in this example we assume the company has no non-controlling interests, no preferred securities, and no other non-operating liabilities such as unallocated pension funds; just short-term debt, long-term debt, and cash.

We will abbreviate some line items so the formula is easier to read:

S.E. [or Mkt. Cap.] + AP + AE + STD + LTD = Cash + AR + Inv. + PP&E

Now we need to move everything that's not related to debt to the other side of the equation, or the accounts payable (AP) and accrued expenses (AE). We can simply subtract AP and AE from both sides of the equation to get:

S.E. [or Mkt. Cap.] + STD + LTD = Cash + AR + Inv. + PP&E – [AP + AE]

And we can regroup the terms on the right to get:

S.E. [or Mkt. Cap.] + STD + LTD = Cash + PP&E + AR + Inv. – AP – AE

Notice that AR + Inv. − AP − AE, or current assets less current liabilities is working capital, so:

S.E. [or Mkt. Cap.] + STD + LTD = Cash + PP&E + W.C.

Now remember enterprise value is shareholders' equity (or market capitalization) plus debt **less cash,** so we need to subtract cash from both sides of the equation:

S.E. [or Mkt. Cap.] + STD + LTD – Cash = PP&E + W.C.

Short-term debt plus long-term debt less cash and cash equivalents is also known as Net Debt. So, this gives us:

S.E. [or Mkt. Cap.] + Net Debt = PP&E + W.C.

This is a very important formula. So, when adding net debt to Shareholders' equity or market capitalization, we are backing into the value of the company's PP&E and working capital in the previous example, or more generally the core operating assets of the business. So, enterprise value is a way of determining the implied value of a company's core operating assets. Further, enterprise value based on market capitalization, or

(Enterprise Value = Market Capitalization + Net Debt)

is a way to approach the value of the operating assets as determined by the investor.

Book Value

Market Value

Note that we have simplified the example for illustration. If the company had non-controlling interests, preferred securities, or other non-operating liabilities such as unallocated pension funds in addition to debts, the formula would read:

$$\text{Enterprise Value} = \text{Market Capitalization} + \text{Net Debt} + \text{Non-Controlling Interests} + \text{Preferred Securities} + \text{Capital Lease Obligations} \; (+ \text{Other Non-Operating Liabilities}).$$

Quite often people wonder why cash needs to be removed from net debt in this equation. This is also a very common investment banking interview question. And, as illustrated here, cash is not considered an operating asset; it is not an asset that will be generating future income for the business (arguably). And so, true value of a company to an investor is the value of just those assets that will continue to produce profit and growth in the future. This is one of the reasons why, in a discounted cash flow analysis, we are only concerned about the cash being produced from the operating assets of the business. (We will discuss this further later.) It is also crucial to understand this core valuation concept, because the definition of an operating asset, or the interpretation of which portions of the company will provide future value, can differ from company to market to industry. Rather than depending on simple formulas, it is important to understand the reason behind them in this rapidly changing environment so you can be equipped with the proper tools to create your own formulas. For example, do internet businesses rely on PP&E as the core operating assets? If not, would the current enterprise value formula have meaning? How about in emerging markets? Subsequent books will dive into each industry in more detail.

MULTIPLES

Multiples are metrics that compare the value of a business relative to its operations. A company could have a market capitalization of $100MM, but what does that mean in relation to their operating performance? If that company is producing $10MM in net income, then its value is 10× the net income it produces. “10× net income” is a market value multiple. These multiples are used to compare the performance of one company to another. Let’s say I wanted to compare this business to another business that also has $100MM in market cap. How would I know which business is the better investment? The value itself is arbitrary in this case unless it is compared to the actual performance of the business. So if the other company is producing $5MM in net income, its multiple is 20×; its value is 20× the net income it produces. As an investor, I would prefer to invest in the lower multiple, as it is the “cheaper” investment. It is more net income for lower value. So, multiples help us compare relative values to a business’ operations.

Other multiples exist depending on what underlying operating metric one would like to use as

the basis of comparison; Instead of net income, EBIT, EBITA, and revenue can be used. But how do we determine which are better metrics to compare? Let's take an example of two companies with similar operations. (See Table 7.1.)

Let's say we want to consider investing in either Company A or Company B. Company A is a small distribution business, a package delivery business that has generated $10, 000 in revenue in a given period. This is a startup company run and operated by one person. It has a cost structure that has netted $5, 000 in EBITDA. Company B is also a small delivery business operating in a different region. Company B is also it is also producing $5, 000 in EBITDA. However, the current owner of Company A has decided to operate his business out of his home. He parks the delivery truck in his garage, so he has minimal depreciation costs and no interest expense. The owner of Company B, however, has decided to operate his business differently. He has built a warehouse to store the packages and park the truck. This has increased the depreciation expense and has created additional interest expense, bringing net income to zero. If we were to compare both businesses based on net income, Company A is clearly performing better than Company B. But, what if we are only concerned about the core operations? What if we are only concerned about the volume of packages being delivered, number of customers, and the direct costs associated to the deliveries? What if we were looking to acquire Company A or B, for example? In that case, let's say we don't care about the debt, the warehouse, or the trucks, as we would sell the warehouse and trucks and pay down the debt. Here, EBITDA would be a better underlying comparable measure. From an operations perspective, looking at EBTIDA, both companies are performing well, and we could have been misled in that case by looking at net income.

TABLE 7.1 Business Comparison

Business Comparison	**Company A**	**Company B**
Revenue	10, 000.0	10, 000.0
COGS	3, 500.0	3, 500.0
Operating Expenses	1, 500.0	1, 500.0
EBITDA	**5, 000.0**	**5, 000.0**
Depreciation	500.0	3, 000.0
EBIT	**4, 500.0**	**2, 000.0**
Interest	0.0	2, 000.0
EBT	**4, 500.0**	**0.0**
Taxes (@ 35%)	1, 575.0	0.0
Net Income	**2, 925.0**	**0.0**

So, although Market Capitalization / Net Income is a common multiple, there are other multiples using metrics, such as EBIT or EBITDA. However, since EBIT and EBITDA are values before interest is taken into effect, we cannot compare them to market capitalization. Remember: Market capitalization, based on the share price, is the value of a business after lenders are paid; EBITDA (before interest) is before lenders have been paid. So, adding net debt (plus potentially other items as discussed in the enterprise value section) back to market capitalization gives us a numerator (enterprise value) that we can use with EBIT or EBITDA as a multiple:

Enterprise Value / EBIT

Or:

Enterprise Value / EBITDA

So, in short, if a financial metric you want to use as the comparable metric is after debt or interest, it must be related to market capitalization—this is a market value multiple. If the financial metric is before debt or interest, it is related to enterprise value—an enterprise value

multiple.

Market Value Multiples	Enterprise Value Multiples
Market Capitalization / Net Income	Enterprise Value / Sales
Price ($/share) / EPS	Enterprise Value / EBITDA
Market Capitalization / Book Value	Enterprise Value / EBIT

THREE CORE METHODS OF VALUATION

The value definitions and multiples from earlier in the chapter are applied in several ways to best approach how much an entity could be worth. There are three major methods utilized to approach this value:

1. Comparable company analysis
2. Precedent transactions analysis
3. Discounted cash flow analysis

Each of these three methods is based on wide-ranging variables and could be considered quite subjective. However, each method approaches value from a very different perspective. So we can have relatively strong support of value from a financial perspective if all three methods fall along a similar valuation range.

Note that there is often considered a fourth method based on a leveraged buyout analysis. Leveraged buyouts are a much larger subject, and will be covered in subsequent books.

Comparable Company Analysis

The comparable company analysis compares our company with companies that are similar in size, product, and geography. The comparable company analysis utilizes multiples as a measure of comparison. If the peers' multiples are consistently higher than the multiples of the company we are valuing, it could mean that our company is undervalued. Conversely, if the peers' multiples are consistently lower than the multiples of the company we are valuing, it could mean that our company is overvalued. The comparable company analysis has one major advantage over the other three:

- It is the most current of all three analyses. It gives a market perspective. The comparable company analysis is based on the most recent stock prices and financials of the company.

However, the comparable company analysis has the following drawbacks:

- It may be difficult to find companies to compare. If the company has a unique business model, is in a very "niche" industry, or is not the size of a public company, it may be difficult to find the right peer group.
- The markets may be undervalued or overvalued. We could be in a market environment in which the entire industry is overvalued or

undervalued. If so, our analysis will be flawed.

Precedent Transactions Analysis

The precedent transactions analysis assesses relative value by looking at multiples of historical transactions. The value of our company is relative to the price others have paid for similar companies. So, if we look for other companies, similar to ours, that have been acquired, we can compare their purchase multiples to assess approximate value of our business.

Purchase Multiples

Purchase multiples are similar to market multiples (described previously), except the numerator in a purchase multiple is based on the price paid for an entity as opposed to the current market value.

Enterprise Value/Net Income, for example, is based on (Market Capitalization + Net Debt†)/ Net Income in a market multiple. But in a purchase multiple, Enterprise Value/Net Income is based on (Purchase Price + Net Debt†)/Net Income [†.plus potentially Non-Controlling Interests, Preferred Securities, Unallocated Pension Funds (and arguably other non-operating liabilities) as discussed in the enterprise value section earlier in this chapter].

A precedent transactions analysis has this major advantage over the other three:

- Purchase price includes a premium. This could be advantageous if we were looking to acquire a company. It would help us determine how much of a premium we would need to consider to convince the owner or shareholders to hand over the company to us.

TABLE 7.2 Multiples

	Market Value	**Enterprise Value (E.V.)**
Market Multiples	Market Cap/Net Income Price / E.P.S (P/E)	E.V. / EBIT E.V. / EBITDA E.V. / Sales (where E.V. is Market Cap. + Net Debt†)
Purchase Multiples	Purchase Price/Net Income	E.V. / EBIT E.V. / EBITDA E.V. / Sales (where E.V. is Purchase Price + Net Debt†)

† Plus potentially Non-controlling Interests, Preferred Securities, Unallocated Pension Funds (and arguably other non-operating liabilities) as discussed in the enterprise value section earlier in this chapter.

And there are several major drawbacks to the analysis:

- **Historical analysis.** Precedent transactions by definition are historical transactions. The analysis may be irrelevant if we are in a completely different economic environment.
- **Difficult to find relevant transactions.** Especially in an environment where there are not many acquisitions, it may not be possible to find acquisitions similar to the one we are analyzing.
- **Difficult to get data.** Even if we do find relevant transactions, it is not always easy to find the data to create the multiples.

Discounted Cash Flow Analysis

The discounted cash flow (DCF) analysis is known as the most "technical" of the three major methods, as it is based on the company's cash flows. The discounted cash flow takes the company's projected unlevered free cash flow (UFCF) and discounts it back to present value (PV). We typically project the company's cash flows out five to seven years. We then create a terminal value, which is the value of the business from the last projected year into perpetuity. The enterprise value of the business is the sum of the PV of all the projected cash flows and the PV of the terminal value.

$$\text{DCF Enterprise Value} = \text{Present Value (PV) of UFCF Year } 1 + \ldots + \text{PV of UFCF Year n} + \text{PV of Terminal Value}$$

The DCF analysis has this major advantage over the other three:

- It is the most technical. It is based on the company's cash flows from model projections, as opposed to the comparable company analysis, for example, which is mainly driven by market data.

The analysis also has several disadvantages:

- **Terminal value.** Although the first projected years are based on modeled cash flows, the terminal value accounts for a very significant portion of the overall valuation. That terminal value is based on a multiple or a perpetuity.
- **Model projections.** The model projections could be inaccurate; they could be overstated or understated, depending on what is driving the projections.
- **Discount rate.** The discount rate may be difficult to estimate. We will go through standard techniques, but these standards do not apply in all situations.

Again, as all three valuation methodologies have significant drawbacks, they do have strengths. In the next few chapters, we will see how to play the strengths of each off of the others to come up with an approximate value for Walmart.

CHAPTER 8

Discounted Cash Flow Analysis

As discussed in Chapter 7, in order to properly value a business based on cash flows, we need to first establish the appropriate cash flows to value—the unlevered free cash flow (UFCF). Once we have properly calculated UFCF we can project and discount the cash flows to present value (PV). We then estimate a terminal value, which is a representation of the value of the business after the last projected year. The sum of the present values of each cash flow is added to the PV of the terminal value to give us the total value of the business.

$$\text{DCF Enterprise Value} = \text{Present Value (PV) of UFCF Year 1} + \ldots + \text{PV of UFCF Year n} + \text{PV of Terminal Value}$$

MID-YEAR VS. END-OF-YEAR CONVENTION

The formula to calculate PV is $\text{UFCF} \times (1 + \text{DiscountRate})^{\text{period}}$. When discounting cash flows in valuation, there are two methods to determine the period: the mid-year convention and the end-of-year convention.

The end-of-year convention assumes each cash flow is discounted at a full year. Year 1 is discounted by one full year, Year 2 by two full years, and so on.

The mid-year-convention discounts each cash flow by half a year. Year 1 is discounted by half a year (0.5), Year 2 by 1.5 years, and so on. The concept here is we don't know exactly when these cash flows come in. Technically, if the end-of-year convention is used where we discount the cash flows by one year in full, we are assuming the cash flow has come in one lump sum at the end of the year. The mid-year convention slightly adjusts for this by discounting half a year.

UNLEVERED FREE CASH FLOW

Unlevered Free Cash Flow (UFCF) is cash that is available to all capital providers including equity holders and lenders. In other words, it is a measure of cash flow before equity holders and lenders have been paid. Further, as valuation is a measure of a company's core operating assets of a business, UFCF should represent the cash generated or lost based on the core operations of the business. To clarify, let's take a look at Walmart's complete cash flow statement. (See Table 8.1.)

To get to an unlevered cash flow amount, we want to remove all cash flows related to the

capital structure. So we eliminate dividend payouts, non-controlling interests, share issuances, share buybacks, debt raises, and debt paydowns; the entire financing activities section is removed.

Further, we want a measure of cash that approaches everyday activity, so non-recurring and extraordinary items such as acquisitions and divestitures will be removed. In the investing activities section, we are left with capital expenditures. (See Table 8.2.)

Simplifying the leftover cash flows give us:

Unlevered Free Cash Flow
Net income
+ Depreciation & amortization
+ Deferred taxes
+ Other non-cash items
+ Working capital changes
− Capital expenditures

Finally, since we are trying to capture a complete measure of cash before lenders have been paid, we also need to adjust the net income for interest expense. So we need to add one more line item: after-tax net interest expense.

Unlevered Free Cash Flow
Net income
+ Depreciation & amortization
+ Deferred taxes
+ Other non-cash items
+ Working capital changes
− Capital expenditures
+ A/T Net interest expense
= **Total unlevered free cash flow**

TABLE 8.1 Consolidated Statements of Cash Flows

Consolidated Statements of Cash Flows (in U.S.$ millions)	Actuals			Estimates				
Period Ending January 31	2010A	2011A	2012A	2013E	2014E	2015E	2016E	2017E
Cash flows from operating activities								
Net income	14,883.0	16,993.0	16,387.0	17,213.2	18,052.0	18,690.3	19,094.2	19,249.3
Loss (income) from discontinued operations	79.0	(1,034.0)	67.0	0.0	0.0	0.0	0.0	0.0
Depreciation and amortization	7,157.0	7,641.0	8,130.0	8,591.7	9,188.6	9,809.4	10,448.9	11,101.1
Deferred income taxes	(504.0)	651.0	1,050.0	715.9	1,003.5	791.0	596.3	411.4
Other operating activities	318.0	1,087.0	398.0	318.0	318.0	318.0	318.0	318.0
Changes in operating working capital								
Changes in accounts receivable	(297.0)	(733.0)	(796.0)	146.5	(289.5)	(243.2)	(189.7)	(130.3)
Changes in inventory	2,213.0	(3,205.0)	(3,727.0)	(148.4)	(2,043.1)	(1,716.2)	(1,338.7)	(919.2)
Changes in prepaid expenses and other	0.0	0.0	0.0	(773.9)	(122.9)	(103.3)	(80.6)	(55.3)
Changes in accounts payable	1,052.0	2,676.0	2,687.0	701.2	1,865.5	1,567.0	1,222.2	839.3
Changes in accrued liabilities	1,348.0	(433.0)	59.0	1,425.7	979.0	822.3	641.4	440.5

Consolidated Statements of Cash Flows								
(in U.S.$ millions)	Actuals			Estimates				
Period Ending January 31	2010A	2011A	2012A	2013E	2014E	2015E	2016E	2017E
Changes in accrued income taxes	0.0	0.0	0.0	(459.8)	34.3	26.1	16.5	6.3
Net changes in operating working capital	**4,316.0**	**(1,695.0)**	**(1,777.0)**	**891.3**	**423.2**	**352.8**	**271.3**	**181.3**
Total cash flows from operating activities	**26,249.0**	**23,643.0**	**24,255.0**	**27,730.1**	**28,985.3**	**29,961.5**	**30,728.7**	**31,261.1**
Cash flows from investing activities								
Payments for property and equipment (CAPEX)	(12,184.0)	(12,699.0)	(13,510.0)	(14,213.0)	(14,923.7)	(15,520.6)	(15,986.2)	(16,305.9)
Capex % of Revenue	*3.0%*	*3.0%*	*3.0%*	3.0%	3.0%	3.0%	3.0%	3.0%
Proceeds from disposal of property and equipment	1,002.0	489.0	580.0	0.0	0.0	0.0	0.0	0.0
Investments and business acquisitions, net of cash acquired	0.0	(202.0)	(3,548.0)	0.0	0.0	0.0	0.0	0.0
Other investing activities	(438.0)	219.0	(131.0)	(438.0)	219.0	(131.0)	(438.0)	219.0
Total cash from investing activities	**(11,620.0)**	**(12,193.0)**	**(16,609.0)**	**(14,651.0)**	**(14,704.7)**	**(15,651.6)**	**(16,424.2)**	**(16,086.9)**
Cash flows from financing activities								
Short-term borrowings (repayments)	(1,033.0)	503.0	3,019.0	0.0	0.0	0.0	0.0	0.0
Long-term borrowings (repayments)	(487.0)	7,316.0	466.0	0.0	0.0	0.0	0.0	0.0
Long-term debt due within one year	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Obligations under capital leases due within one year	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Dividends paid	(4,217.0)	(4,437.0)	(5,048.0)	(5,344.7)	(5,187.3)	(5,029.9)	(4,872.5)	(4,715.1)
Dividends paid ($/share)				*1.59*	*1.59*	*1.59*	*1.59*	*1.59*
Purchase of common stock [treasury stock]	(7,276.0)	(14,776.0)	(6,298.0)	(7,308.2)	(7,308.2)	(7,308.2)	(7,308.2)	(7,308.2)
Purchase of redeemable noncontrolling interest	(436.0)	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Capital lease obligations	(346.0)	(363.0)	(355.0)	0.0	0.0	0.0	0.0	0.0
Other	(396.0)	(271.0)	(242.0)	(242.0)	(242.0)	(242.0)	(242.0)	(242.0)
Total cash from financing activities	**(14,191.0)**	**(12,028.0)**	**(8,458.0)**	**(12,894.9)**	**(12,737.5)**	**(12,580.1)**	**(12,422.6)**	**(12,265.2)**
Effect of exchange rate on cash	194.0	66.0	(33.0)	194.0	66.0	(33.0)	194.0	66.0
Total change in cash and cash equivalents	**632.0**	**(512.0)**	**(845.0)**	**378.3**	**1,609.2**	**1,696.8**	**2,075.8**	**2,974.9**
SUPPLEMENTAL DATA:								
Cash flow before debt paydown				378.3	1,609.2	1,696.8	2,075.8	2,974.9

TABLE 8.2 Consolidated Statements of Cash Flows

Consolidated Statements of Cash Flows (in U.S.$ millions)	Actuals			Estimates				
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Deferred income taxes	(504.0)	651.0	1,050.0	715.9	1,003.5	791.0	596.3	411.4
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Changes in operating working capital								
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Changes in accrued income taxes	0.0	0.0	0.0	(459.8)	34.3	26.1	16.5	6.3
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Total cash flows from operating activities	**26,249.0**	**23,643.0**	**24,255.0**	**27,730.1**	**28,985.3**	**29,961.5**	**30,728.7**	**31,261.1**
Cash flows from investing activities								
Payments for property and equipment (CAPEX)	(12,184.0)	(12,699.0)	(13,510.0)	(14,213.0)	(14,923.7)	(15,520.6)	(15,986.2)	(16,305.9)
CAPEX % of Revenue	*3.0%*	*3.0%*	*3.0%*	3.0%	3.0%	3.0%	3.0%	3.0%
~~Proceeds from disposal of property and equipment~~	~~1,002.0~~	~~489.0~~	~~580.0~~	~~0.0~~	~~0.0~~	~~0.0~~	~~0.0~~	~~0.0~~
~~Investments and business acquisitions, net of cash acquired~~	~~0.0~~	~~(202.0)~~	~~(3,548.0)~~	~~0.0~~	~~0.0~~	~~0.0~~	~~0.0~~	~~0.0~~
~~Other investing activities~~	~~(438.0)~~	~~219.0~~	~~(131.0)~~	~~(438.0)~~	~~219.0~~	~~(131.0)~~	~~(438.0)~~	~~219.0~~
Total cash from investing activities	**(11,620.0)**	**(12,193.0)**	**(16,609.0)**	**(14,651.0)**	**(14,704.7)**	**(15,651.6)**	**(16,424.2)**	**(16,086.9)**
Cash flows from financing activities								
~~Short-term borrowings (repayments)~~	~~(1,033.0)~~	~~503.0~~	~~3,019.0~~	~~0.0~~	~~0.0~~	~~0.0~~	~~0.0~~	~~0.0~~
~~Long-term borrowings (repayments)~~	~~(487.0)~~	~~7,316.0~~	~~466.0~~	~~0.0~~	~~0.0~~	~~0.0~~	~~0.0~~	~~0.0~~
~~Long-term debt due within one year~~	~~0.0~~	~~0.0~~	~~0.0~~	~~0.0~~	~~0.0~~	~~0.0~~	~~0.0~~	~~0.0~~

Consolidated Statements of Cash Flows (in U.S.$ millions)	Actuals			Estimates				
Period Ending January 31	2010A	2011A	2012A	2013E	2014E	2015E	2016E	2017E
Obligations under capital leases due within one year	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Dividends paid	(4,217.0)	(4,437.0)	(5,048.0)	(5,344.7)	(5,187.3)	(5,029.9)	(4,872.5)	(4,715.1)
Dividends paid ($/share)				1.59	1.59	1.59	1.59	1.59
Purchase of common stock [treasury stock]	(7,276.0)	(14,776.0)	(6,298.0)	(7,308.2)	(7,308.2)	(7,308.2)	(7,308.2)	(7,308.2)
Purchase of redeemable noncontrolling interest	(436.0)	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Capital lease obligations	(346.0)	(363.0)	(355.0)	0.0	0.0	0.0	0.0	0.0
Other	(396.0)	(271.0)	(242.0)	(242.0)	(242.0)	(242.0)	(242.0)	(242.0)
Total cash from financing activities	(14,191.0)	(12,028.0)	(8,458.0)	(12,894.9)	(12,737.5)	(12,580.1)	(12,422.6)	(12,265.2)
Effect of exchange rate on cash	194.0	66.0	(33.0)	194.0	66.0	(33.0)	194.0	66.0
Total change in cash and cash equivalents	632.0	(512.0)	(845.0)	378.3	1,609.2	1,696.8	2,075.8	2,974.9
SUPPLEMENTAL DATA:								
Cash flow before debt paydown				378.3	1,609.2	1,696.8	2,075.8	2,974.9

There's often a lot of confusion as to whether these line items should be added or subtracted. The best rule of thumb is to follow how the cash flow statement is making these adjustments. We are trying to replicate a form of cash flow, so if the cash flow statement is adding the item, we should also add it; if the cash flow statement is subtracting the item, we should subtract. According to a standard cash flow statement, the flow should be:

Net Income + D&A + Deferred Taxes + Other Non-Cash Items + Working Capital Changes – CAPEX + A/T Net Interest Expense

Yes, it is plus working capital, because the cash flow statement adds working capital to the net income to get to cash from operations. We get confusion here a lot because many textbooks suggest subtracting working capital. They are actually referring to subtracting the balance sheet working capital changes. In other words, if accounts receivable increased from $0 to $1, 000, or if the change is $1, 000, then we know the cash flow change is $-$1, 000, because an increase in an asset reflects a cash outflow. However, if we take the actual working capital number directly from the cash flow statement, which is already represented as a negative ($-$1, 000), we just add it.

It is crucial to note that there can be other items in the investing activities other than CAPEX that could arguably be attributable to everyday operations. Although it's not explicitly defined in the UFCF formula, the point of the entire analysis is to get to a number that reflects the cash we expect to be generated from the future operations of the business. Further, in the operating activities, there may be other adjustments that are not categorized within the standard UFCF definition. It is important to step back and think about how these line items are affecting net income to decide if they should also be adjusted in the UFCF. In other words, if these line items are actually non-cash items that need to be adjusted to net income in order to get to a closer measure of cash from net income, then they should be included in the analysis. However, if these are truly non-recurring events, and if we have already pulled them out of net income on the income statement, adjusting them here may not be correct. This is one example of how important it is to fully understand where UFCF is coming from and why it is being used as opposed to just taking and using the formula as printed.

Now, the previous definition is not the most standard definition of UFCF. Typically, we use EBIT as a starting point, not net income. It is easier to project an income statement from revenue down to EBIT only, rather than all the way down to net income, especially since we are adding back so many items anyway. However, either way will get you the same results. So if we had EBIT as a starting point, we still have to make the same core adjustments:

Unlevered Free Cash Flow
Net income
+ Depreciation and amortization
+ Deferred taxes
+ Other non-cash items
+ Working capital changes
– Capital expenditures
+ A/T net interest expense
= Total unlevered free cash flow

Unlevered Free Cash Flow
EBIT
+ Depreciation and amortization
+ Deferred taxes
+ Other non-cash items
+ Working capital changes
– Capital expenditures

Note here we have to double-check once again which line items we are (or are not) including as other non-cash items, and for different reasons: If the particular non-cash item was a net income adjustment for a line item that was below the EBIT line, which we didn't even include anyway, adjusting it here would be incorrect.

We still have to make one more adjustment: taxes. We do not need to adjust for interest expense as EBIT is already before interest expense. But, EBIT is also before taxes. So in order to adjust for taxes we need to take EBIT × Tax%. It is important to note we do not take the exact number of taxes from the income statement as that number includes the effects of interest.

Unlevered Free Cash Flow
Net income
+ Depreciation and amortization
+ Deferred taxes
+ Other non-cash items
+ Working capital changes
– Capital expenditures
+ A/T net interest expense
= Total unlevered free cash flow

Unlevered Free Cash Flow
EBIT
+ Depreciation and amortization
+ Deferred taxes
+ Other non-cash items
+ Working capital changes
– Capital expenditures
– Taxes (EBIT × Tax%)
= Total unlevered free cash flow

It is important to note here the importance of understanding the derivation of UFCF. In this ever-changing market environment with new and evolving business models, the standard "textbook" definition of UFCF may need to be adjusted to be a true measure of value for a particular entity. Understanding the purpose of UFCF as a measure of value will help one to create his or her own adjustments to get to the true value of an entity.

WEIGHTED AVERAGE COST OF CAPITAL (WACC)

Note: We will knowingly take an over-simplistic view of WACC in this book. Again, there are many great books out there that focus solely on this topic, and although important to valuation, the purpose of this book is not to focus solely on WACC but to understand it just enough to use it as a tool for analysis.

Now that we have UFCF, we need to discount the flows to PV. The rate at which we discount them is determined by how much an investor expects to be returned for his or her particular

investment. For a company with both debt and equity in its capital structure, we would calculate a weighted average of the returns the equity investors would expect and the returns the lenders would expect weighted by the amount of equity versus debt in the business.

For example, if our company had both equity investors and debt lenders, and if the equity investors expect a 25 percent rate of return and the debt lenders expect a 10 percent rate of return, our WACC would be a weighted average of the equity investors' and lenders' required rate of returns to the actual amount of debt and equity invested in the business. So if the business contains $100 of equity and $200 of debt, the equity investors expect a $25 ($100 × 25%) annual return, and the lenders expect a $20 ($200 × 10%) annual return, or, we would need to return $45 ($25 + $20) each year. This represents a combined 15 percent ($45 / $300) expected rate of return. We have ignored tax here for simplicity.

This is the weighted average cost of capital. More specifically, the formula is:

$$\text{WACC} = \frac{\text{Debt}}{\text{Deb t} + \text{Equity)}} \times \text{Cost of Debt} \times (1 - \text{Tax\%}) + \frac{\text{Equity}}{\text{Deb t} + \text{Equity)}} \times \text{Cost of Equity}$$

Note that we apply (1 − Tax%) to the cost of debt as those interest payments are tax deductible.

We can apply this to the previous example:

$$\text{WACC} = \frac{\$200}{(\$100 + \$200)} \times 10\% \times (1 - 0\%) + \frac{\$100}{(\$100 + \$200)} \times 25\%$$

Note that we assumed 0% taxes in this simple example.

This gives us 15 percent.

Although this is the fundamental definition of WACC, true WACC would take into account all types of debts and equity a company may have in the following way. Let's say a company has long-term debt, mezzanine debt, common equity, and preferred capital. And, let's call total capital the sum of the long-term debt, mezzanine debt, common equity, and preferred capital. So, the WACC would be:

$$\begin{aligned}\text{WACC} = {} & \frac{\text{Long - Term Debt}}{\text{Total Capital}} \times \text{Cost of Long - Term Debt} \times (1 - \text{Tax\%}) + \frac{\text{Mezzanine}}{\text{Total Capital}} \\ & \times \text{Cost of Mezzanine} \times (1 - \text{Tax\%}) + \frac{\text{Preferred}}{\text{Total Capital}} \times \text{Cost of Preferred} \\ & + \frac{\text{Common Equity}}{\text{Total Capital}} \times \text{Cost of Common Equity}\end{aligned}$$

We assume here the interest payments on the long-term and mezzanine debts are tax deductible, and we also assume there are no tax-deductible payments made on the preferred securities.

WACC should be a current value based on market trends, so it is appropriate to take the market value of equity, and the market value of debts and interests (when available) to calculate the most current WACC.

Cost of Debt

The cost of debt is the expected return to the debt lenders, or the interest rate. It is important to use the most current interest rates if available.

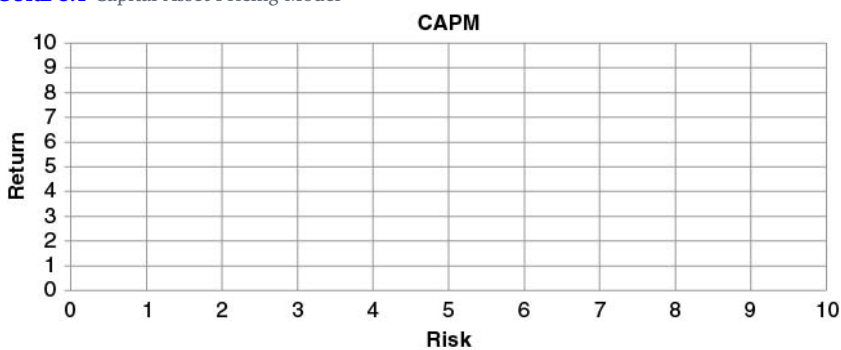
Cost of Equity

The cost of equity is the expected return to the equity investors. To estimate the cost of equity, we must determine the expected rate of return of a company. Since the expected rate of return is not directly obtainable, especially for a public company, we must rely on an asset-pricing model. Asset-pricing models base expected return on the risk of an entity. There are several different asset-pricing models; each differs in the way risk is defined and interpreted into an appropriate return. The most common used in investment banking is the Capital Asset Pricing Model (CAPM).

The general idea of the CAPM is based on the graph in Figure 8.1.

Here the *x*-axis represents the risk and the *y*-axis represents return. This graph can represent any investment within the universe of investments from playing poker to investing in the S&P 500. In such an environment, given that it is a rational environment, where we assume all investors are making rational investment decisions, we assume there is always some investment with zero risk. This investment could have a 0 percent return or a negative return, but we assume if that was the case, no investors would be interested. So, we assume there exists some riskless investment with some minimal return. We understand that many investments do not work out, but we are making assumptions in an environment of expected returns. In the U.S. markets, we can take the U.S. Treasury bonds as an example of an arguably riskless investment at a 2.93 percent return as of October 9, 2012. CAPM states if such an investment exists, no rational investor would make an investment that would bring about the same return but would contain risk. (See Figure 8.2.)

FIGURE 8.1 Capital Asset Pricing Model



Why would we take additional risk for the exact same return when we can get that return with zero risk? CAPM goes further to state that an investor would accept greater risk in a particular investment if there is an equivalent potential to receive a greater rate of return. (See Figure 8.3.)

FIGURE 8.2 Capital Asset Pricing Model: Risk-Free Rate

We would never invest in the shaded area, which is less return for additional risk.

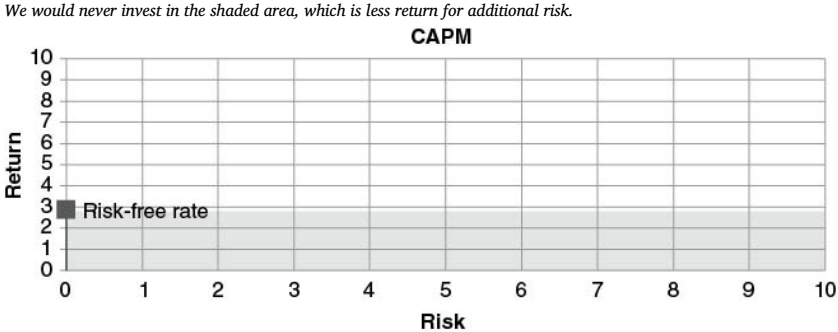
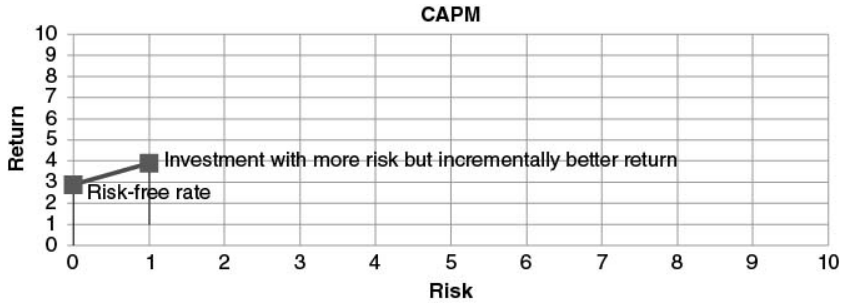


FIGURE 8.3 Capital Asset Pricing Model: Risky Investment



This can go on with an investment of even greater risk. A rational investor would only consider an investment of greater risk than the previous investment if there is an equivalently greater return. This would continue out to the line in Figure 8.4, below where all rational investments should center around.

It is important to note that although there are investments that have poor results, there will never be a rational investor making continuous poor-return investments with great risk. For that reason there should not be a majority of investments made below the drawn line.

Further, if there exist investments that produce a higher return, or investments above the line, then all rational investors would eventually gravitate to that investment and would form a new basis of what levels of returns an investor would expect for the associated risk. Therefore, if that was the case, then there would be a new line drawn, a new basis. (See the dotted line in Figure 8.5, which would replace the solid line.)

Given the fact that that line would exist if it could exist, and further given the fact that it does not exist, implies that it cannot exist.

FIGURE 8.4 Capital Asset Pricing Model: Average Risk/Return

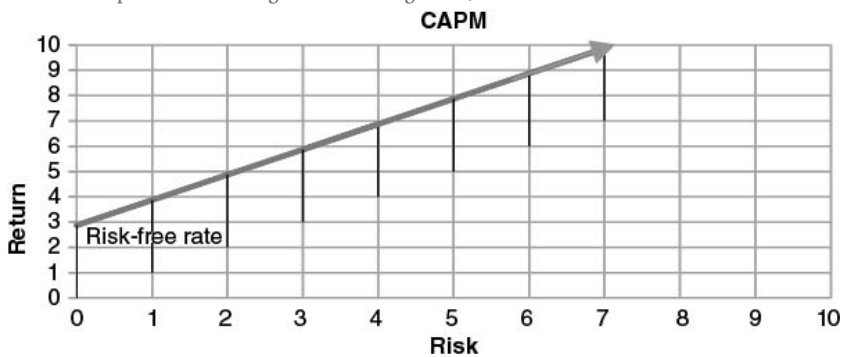
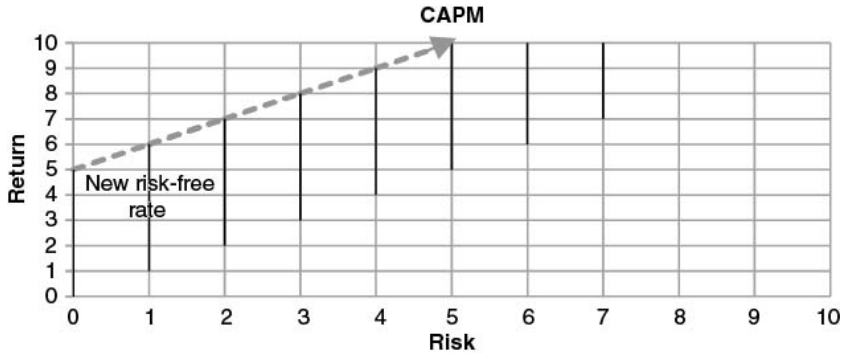


FIGURE 8.5 Capital Asset Pricing Model: Theoretical New Average Line



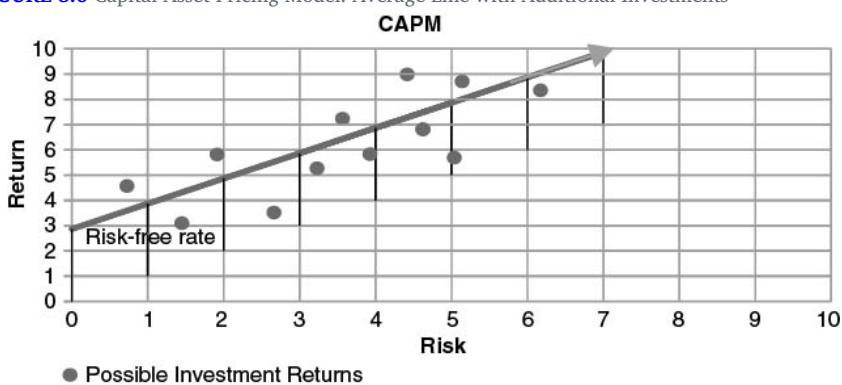
This line is expected to be an average, and in reality there are investments that can fall anywhere in the box, but the main idea is that on average they should hover around the line. (See Figure 8.6.)

In order to find the cost of equity of our investment, we need to locate the dot representing the expected risk/return of Walmart.

Market Risk Premium

Before locating the risk/return of Walmart, it is important to find the estimated expected return of the entire market. Based on the logic of the previous section, the average return of an index, such as the S&P 500, should be somewhere on the line drawn in Figure 8.6 as this is an indicator of where one would hope rational investors would gravitate toward, at least in theory. There are several ways to estimate this return. One is by taking the historical average of the index or portfolio over the last 10, 20, 30 years through the last 100 years, and then taking a median of those averages.

FIGURE 8.6 Capital Asset Pricing Model: Average Line with Additional Investments



Ibbotson Associates is an expert consulting firm that provides great data on market risk premiums; however, it is not a free resource. We strongly recommend Mr. Aswath Damodaran's web site, which can be found at http://pages.stern.nyu.edu/~adamodar/.

Another method is based on the dividend model. The dividend model states the expected return is equal to the dividend yield plus the growth in dividends of the stocks that make up a particular index.

For CAPM, we are concerned about the spread between the expected return of the market and the risk-free rate—the premium. This is called the market risk premium. Ibbotson also has research on the spread between the historical returns of the market and the historical risk-free rates to calculate the market risk premium. (Note: This valuation section is designed to be light on the theory and cut to the practical methods. For a more thorough and complete theoretical understanding of CAPM, I highly recommend Aswath Damodaran's books on valuation.)

The market risk premium answers this: How much above the risk-free rate can I expect to return from my investment? Let's say the expected return of the S&P 500 is shown in Figure 8.7.

This implies that the components of the S&P 500 index, the individual stocks that make up the index, should hover somewhere around the S&P 500 index. Although there will be exceptions, there should be a radius from where all investments that make up the index should lie. (See Figure 8.8.)

So, if we find a way to pinpoint where Walmart can be within this radius, we can estimate its expected return. This is where Beta helps us.

FIGURE 8.7 Capital Asset Pricing Model: Expected Market Return

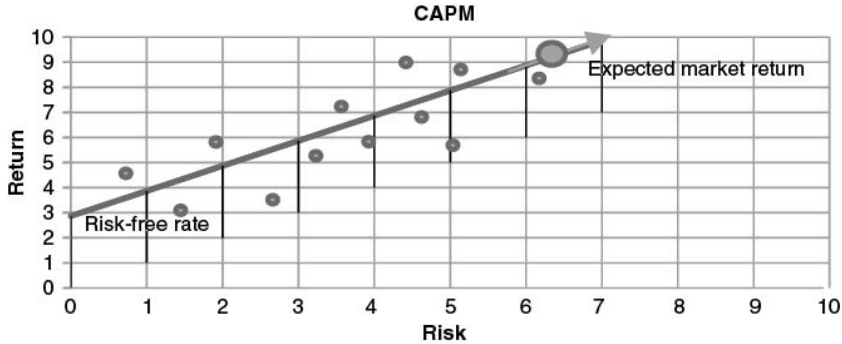
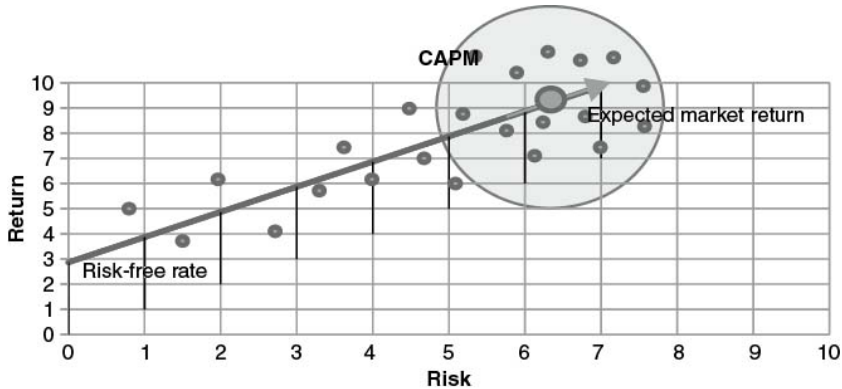


FIGURE 8.8 Capital Asset Pricing Model: Expected Return of S&P 500 Companies



BETA

Beta is a correlation coefficient that represents how closely one set of historical returns correlates or moves with another. In other words, if we compare the historical returns of Walmart with the

S&P 500, and if Walmart has a Beta of 1, this means that Walmart is perfectly correlated with the S&P 500. Or, if the S&P 500 is expected to return 5 percent, then Walmart will be expected to return 5 percent. If, however, Beta is 0.5, then if the S&P 500 is expected to return 5 percent, Walmart will be expected to return 2.5 percent. Further, if Beta is -1, then if the S&P 500 is expected to return 5 percent, the Walmart will be expected to return -5 percent.

Walmart's Beta is achieved by comparing the last x years of its historical returns to the S&P 500, where x can be 10 years, 30 years, up to 100 years, or more.

The formula for the beta of an asset is

$$\beta_a = \frac{\text{Cov}(r_a, r_p)}{\text{Var}(r_p)},$$

Where r_a measures the rate of return of the asset, r_p measures the rate of return of the index or portfolio, Cov(r_a, r_p) is the covariance between the rates of return of the asset and the index, and Var (r_p) is the variance between the rates of return of the index.

There are many resources that have Beta data. Barra (www.barra.com) is a research firm known to accurately calculate Betas over many different time periods. Unfortunately this data is not free, but if one has Bloomberg, Thompson, Capital IQ, or a similar data resource, many of them either pull in Barra Betas or calculate their own Betas. Yahoo! Finance is a good free resource that also contains Beta information.

Levering and Unlevering Beta

Since Beta as defined previously is based on market value returns, it is often believed that removing the leverage from such Betas would give a closer estimate of the Beta directly related to the operating assets of the business. This concept of "unlevering" and "levering" the Beta can be achieved by the following formula:

$$\text{Unlevered Beta} = \frac{\text{Levered Beta}}{1 + (1 - \text{Tax\%}) \times \frac{\text{Debt}}{\text{Equity}}}$$

$$\text{Re - Levered Beta} = \text{Unlevered Beta} \times \left\{1 + (1 - \text{Tax\%}) \times \frac{\text{Debt}}{\text{Equity}}\right\}$$

In practice, this can be used for purposes of valuation. In addition to calculating a company's Beta in relation to the market, or looking up a calculated Beta, one can take an average of the comparable company's Betas. However, since companies have varying capital structures, one can first "unlever" each Beta, take the average, then re-lever the beta using the target company's (Walmart's) capital structure. This can be helpful when trying to assess the Beta of a private company or if the company you are trying to assess has for some reason a very unusual Beta. It may also be useful to try several methods and compare. Also, the concept of utilizing an unlevered Beta can be a useful approximation of the Beta directly related to the operating assets of the business.

So in terms of CAPM, the Beta of a particular stock can help us identify what its expected return can be. So Beta times the market risk premium (MRP) is the effective expected return of our investment. But note the MRP, and effectively the Beta times MRP (Beta $\times$ MRP) is just the expected premium above the risk-free rate. So in order to get the estimated total equity return of a particular investment, we need to add back the risk-free rate of return (rf). So:

$$\text{Cost of Equity} = \text{rf} + \text{Beta}(\beta) \times \text{MRP}$$

When calculating this formula for a particular investment, it is crucial to understand the drivers, even at this most basic level, as they may change in different markets or for unique investments. First, timing is an important consideration. One must consider whether to use a 10-year treasury rate for the risk-free rate, or a 30-year rate. One must also consider using 10-year calculated Betas or 30-year calculated Betas. The first rule of thumb is to be
consistent. If using a 30-year risk-free rate of return, then one should us
30 year Betas and an MRP based on 30-year average returns. Some investors prefer to calculate shorter-term Betas based on 10-year metrics; we prefer longer-term Betas, as a discounted cash flow (DCF) analysis is a representation of a business far into maturity and perpetuity. But we respect the
10-year argument as well.

It is also important to consider the relative markets. If one is valuing a German company, for example, one would not use the S&P 500 and the U.S. treasury rates as basis, but rather a German index and German risk-free rate of return.

TERMINAL VALUE

Once we have the discount rate, we will use that rate to discount the projected cash flows. This only gives us the value of the company over the first few projected years. What about the value of the company after the last projected year? In other words, if we have built a five-year model, discounting the UFCFs gives us the implied value of the company for just the first five years.

The terminal value of a company estimates the value of the business after the last estimated year. There are two major methods for calculating the terminal value of a company:

- Multiple method
- Perpetuity method

Multiple Method

The multiple method applies a multiple to the final projected year's financials. Typically, an EBITDA multiple is applied to the company's final year EBITDA. The value of the company in year 2017, for example, is the value we can sell the company for in 2017. So if we are using a $5\times$ EBITDA multiple, and if the company's 2017 EBITDA is 100, 000, then we believe we can sell the company for 500, 000. The multiple to use can come from comparable companies, or we can take the company's current market EBITDA multiple. Taking the company's current market multiple can be considered a conservative approach (unless the company is extremely overvalued). In other words, if we sell the company in five years for at least what it is worth today (on a multiple basis), and we assume EBITDA is growing, then the total sale value should be higher.

Once we have the terminal value, we then discount that value back to PV.

Perpetuity Method

The perpetuity method is based on a typical perpetuity, which is a steady stream of cash flows with no end. The formula for a perpetuity terminal value is:

$$\frac{UFCF \times (1+g)}{r-g}$$

where r is the discount rate (the WACC) and g should represent the perpetual rate of cash flow growth. "g" is not easy to estimate. Some people suggest using the GDP growth rate (currently $2-3\%$) or the rate of inflation ($1-2\%$), but remember this is supposed to represent the growth rate for many years, even if the current environment is sluggish.

Once a terminal value is established, this is also discounted to PV.

It is important to understand the differences between the terminal value of a business based on the multiple and the terminal value based on perpetuity. The perpetuity is based on cash flow and some low growth. The terminal value based on a multiple is driven by the market. It is good practice to run both methods and compare the two. If the multiple method is much higher than the perpetuity, maybe the markets are overvalued, or maybe the cash flow projections are too low (low perpetuity value). Or if the multiple method is much lower than the perpetuity method, maybe our projections are too aggressive, or maybe the markets are undervaluing the business (low multiple). Or, in the best case, both methods produce similar results, which can imply the cash projections are in line with market expectations. These are meant to just be a few of the many ways to interpret the terminal value.

It is interesting to note that in 2008 and 2009, during the recession, we saw many companies whose terminal values utilizing the multiple method were significantly lower than the perpetuity method. This implies the companies' cash flows were strong, but the market was undervaluing the businesses; potentially a rare and good investment opportunity. Today most of those stocks have increased back to normal levels.

Once we have a terminal value, we would add the terminal value to the sum of the PV of the company's projected cash flows to get a total enterprise value for the business. Let's run the analysis for Walmart to get a better picture of the process.

WALMART DCF ANALYSIS

We will build a five-year DCF analysis for Walmart. We could have done a seven-year or 10-year, but we felt anything beyond five years would be too uncertain. This is more a matter of preference than rule. We will utilize the DCF tab in the spreadsheet for this analysis. As per the UFCF formula, we need to first locate Walmart's projected 2013 EBIT. This can be found on the income statement in Cell G24. So, we can have G7 on the DCF tab be

```
='Income Statement'!G24
```

The rest of the line items in the UFCF analysis should come from the cash flow statement. Remember: The goal is to get an accurate measure of cash produced from the company's operations. However, we take EBIT as opposed to net income, as EBIT already has interest and potentially some other items adjusted, so in that respect it is a closer measure of cash and a better starting point.

Depreciation and amortization will come from Row 9 in the cash flow statement. Or, G8 will read

```
='Cash Flow Statement'!G9
```

Deferred taxes, Row 9 on the DCF tab, will be linked in from Row 10 in the cash flow statement. Or, G9 on the DCF tab equals

```
='Cash Flow Statement'!G10
```

"Other" is a tricky "catch-all" row. This reflects any non-cash items that are not standard to the unlevered cash flow formula for which we may need to adjust. (Please refer to the "Unlevered Free Cash Flow" section earlier in this chapter for a more detailed description.) We should look to the cash flow statement for any other possible adjustments to be considered. Row 8 in the cash flow statement, for example, entitled "Loss (income) from discontinued operations to net cash" is projected at "0, " so whether we adjust for it or not will not make a difference. However, for purposes of instruction, it is important to note that we should not adjust for this. (We should not include this in the DCF "other" line.) This is because we notice the 2012 historical adjustment ($67MM) was an add-back from an adjustment made below the net income line on the income statement (income statement Row 37). Since we are building our DCF analysis from EBIT, before those income statement adjustments are made, it would not make sense to add back that line item in the cash flow statement. Or, in other words, adding back that line item would effectively be double counting. There is also a line called "Other operating activities." We had taken the conservative approach to project this line item out earlier. Without too much information gained from doing research, we do have two helpful clues to determine if we should be including this into our UFCF analysis:

- This is within a section entitled "Adjustments to reconcile income from continuing operations to net cash provided by operating activities." This suggests this is certainly a non-cash adjustment; and
- It clearly states this is an adjustment to an "operating" activity. Based on our best guess, we will assume this is a component of operating expenses, which is a part of EBIT.

So, if the cash flow statement is adjusting for this, then we would suggest this is a valid non-cash adjustment that will also need to be made to EBIT. We should include this in our "other" line. So, Row 10 of our DCF tab should be

```
='Cash Flow Statement'!G11
```

"Changes in working capital, " Row 11 of our DCF tab, will come from the changes in working capital section of our cash flow statement. So, in Cell G11 we will have

```
='Cash Flow Statement'!G19
```

Remember the rule here on keeping the working capital flowing exactly as it is flowing in the cash flow statement. Often people get confused, as definitions of UFCF suggest working capital should be subtracted. While, yes, we are adding working capital here, we are effectively subtracting the year-to-year working capital changes from the balance sheet. Please refer to the "Unlevered Free Cash Flow" section earlier in this chapter for more clarification.

Capital expenditures will come from the investing activities section of the cash flow statement. So Cell G12 will be

```
='Cash Flow Statement'!G22
```

Finally, taxes will be re-calculated here. Don't make the mistake of taking taxes from the income statement. The income statement taxes take into account the effects of interest; EBIT does not. So we need to recalculate taxes based on EBIT. Or, Taxes = EBIT × Tax%, so Cell G13 should be

```
=-G7*'Income Statement'!G34
```

Remember to put a "-" before this formula, as we want to subtract the taxes from the cash flows.

Now we can sum up the cash flow in Row 14. G14 is

```
=SUM(G7:G13)
```

We can highlight every cell from G7 through G14 and copy every formula to the right to get

the projected cash flows shown in Table 8.3.

Now that we have calculated UFCFs, we need to calculate the PV of each. Notice there is a "period" row (Row 16), where we list the discount period for each year. We will use end-of-year convention. So, since 2013 is one year away, we will have a discount period of 1. In 2014, we will have a discount period of 2, and so on, through 5. So, we will simply hardcode 1 in Cell G16, 2 and H16, and so on.

Before we can actually discount each cash flow we need to calculate the weighted average cost of capital (WACC).

WACC

$$\text{WACC} = \frac{\text{Debt}}{(\text{Debt} + \text{Equity})} \times \text{Cost of Debt} \times (1 - \text{Tax\%}) + \frac{\text{Equity}}{(\text{Debt} + \text{Equity})} \times \text{Cost of Equity}$$

There is a box beginning in Cell J20 that can help us lay out the inputs for this calculation. Before beginning it is important to consider the time frame and geographic scope of our analysis. Should we create a 10-year WACC or a 30-year WACC? Please refer to the "Weighted Average Cost of Capital" section earlier in this chapter for more detail on the thought process and the differences. Let's create a 30-year WACC, as we like the theory that we are creating a value of the business through perpetuity, a long-term value. In terms of geography, even though Walmart is a global business, they are U.S.–based and a component of the S&P 500. So we need to be sure to use a 30-year U.S. Treasury rate and 30-year BETA. We also need to use an MRP based on the S&P 500.

Cost of Equity

Cost of Equity = rf + Beta(β) × MRP, where rf is the risk-free rate and MRP is the market risk premium. The best place to get the U.S. Treasury rate is from the Department of Treasury (ustreasury.gov). Googling "U.S. Treasury Rate" will lead you to the page shown in Figure 8.9.

TABLE 8.3 Walmart Unlevered Free Cash Flow

Discounted Cash Flow Analysis (in U.S.$ millions)	Actuals			Estimates				
Period Ending January 31	2010A	2011A	2012A	2013E	2014E	2015E	2016E	2017E
Unlevered Free Cash Flow								
EBIT				27,888.4	29,115.5	30,026.8	30,582.4	30,750.8
Depreciation & Amortization				8,591.7	9,188.6	9,809.4	10,448.9	11,101.1
Deferred Taxes				715.9	1,003.5	791.0	596.3	411.4
Other				318.0	318.0	318.0	318.0	318.0
Changes in Working Capital				891.3	423.2	352.8	271.3	181.3
Capital Expenditures				(14,213.0)	(14,923.7)	(15,520.6)	(15,986.2)	(16,305.9)
Taxes				(9,203.2)	(9,608.1)	(9,908.8)	(10,092.2)	(10,147.8)
Total Unlevered Free Cash Flow				**14,989.1**	**15,517.0**	**15,868.5**	**16,138.5**	**16,308.9**

FIGURE 8.9 U.S. Department of the Treasury Resource Center

As of October 9, 2012, it looks like the 30-year U.S. Treasury rate is 2.93 percent. So we can enter 2.93% into Cell L21.

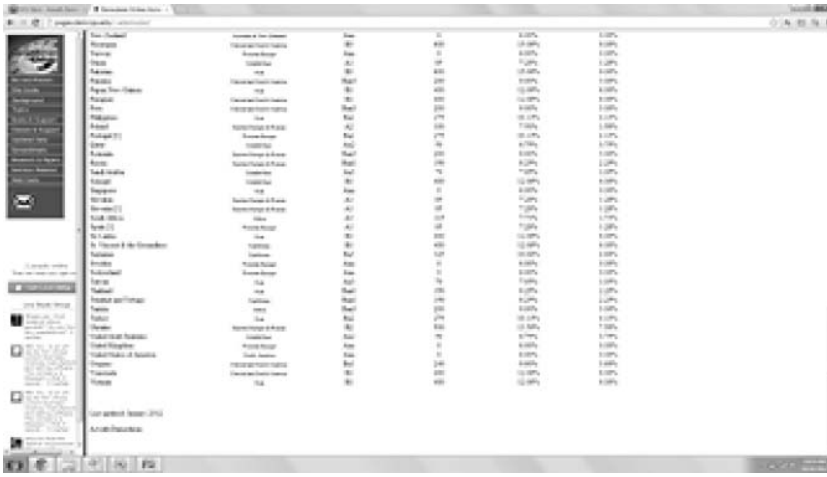
Now we need to find the market risk premium. We can find MRP data on Mr. Aswath Damodaran's web site, which can be found at http://pages.stern.nyu.edu/~adamodar/.

Once arriving at Damodaran's web site, selecting "Updated Data" on the left will bring up a series of spreadsheets that contain market statistic and multiples for the United States and worldwide. This site is a great reference, and can be utilized to cross-check various market and statistical data. We can scroll down to the "Data Sets" section, and within that section selecting "Risk Premiums for Other Markets" will bring up a file of market risk premiums for the United States and other markets throughout the world. (See Figure 8.10.)

In Figure 8.10, it can be seen that the current market risk premium for the United States is 6.0 percent. Let's use this. We can hardcode 6% into Cell L22.

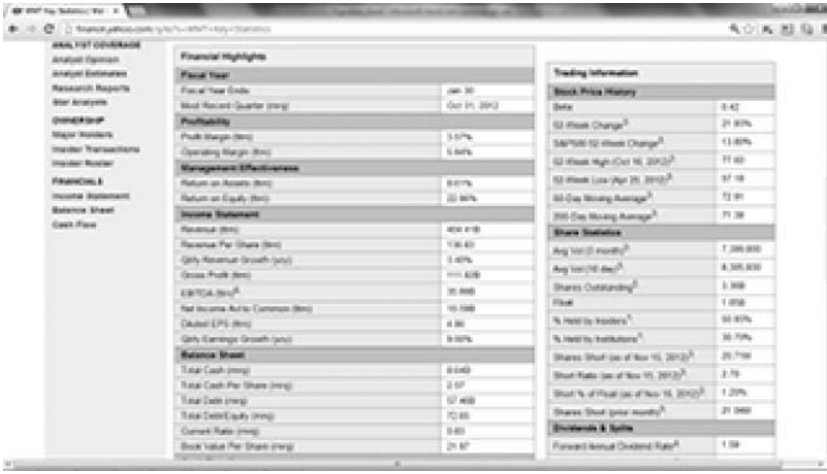
We now need Beta to be able to calculate the cost of equity. As mentioned earlier in this chapter, there are many resources that have Beta data. A good public and free resource is Yahoo! Finance. If we go to finance.yahoo.com, and type in WMT in the "Ticker" section of the site, a company description for Walmart will come up. We can select "Key Statistics" on the left. (See Figure 8.11.)

FIGURE 8.10 Country Risk Premiums



We can see on the right side of the page in Figure 8.11 “Beta” is listed at 0.42. Note this is a relatively low Beta. As Walmart is a very large and relatively un-volatile business, we expect the Beta to be quite low. A Beta of a technology company, for example, could be as high as 2.5 or even higher. Let’s type 0.42 into Cell L23. We can now calculate the cost of equity by multiplying the Beta times the market risk premium, and then adding the risk-free rate of return. Or, in Cell L24,

FIGURE 8.11 Walmart Key Statistics



=L21+L22*L23

This gives us a 5.45 percent cost of equity. This is relatively low, and not unexpected for a company with such low volatility and low Beta. For comparison, if a company has a Beta of 1, which implies that the volatility of the company is in line with that of the S&P 500, then the MRP × Beta would be 6 percent. Adding a 2.93 percent risk-free rate would give us 8.93 percent cost of equity. If the Beta was 1.5, the cost of equity would be 11.93 percent.

The cost of debt of a company should be based on the interest rate of debt raised today. It is important to note that the cost of debt should not represent the interest rate on past debts. If the company has a current corporate debt rating, that would be preferred. If not, one would need to

estimate the current rate by taking the rate of the most recent debt raised. One can also estimate the rate by looking at similar debts from competitors, but one must make sure that the competitor's capital structure and other factors that may affect the rating are similar.

The best public information we can get is via Morningstar Research. (See Figure 8.12.)

According to Morningstar, the most recent debt issued was in 2011 and has an interest rate of 5.625 percent. Although it would be better to get more current information, the rate on this long-term bond is a good proxy. We can hardcode 5.625% into Cell L25. We can now use these rates to calculate the WACC.

FIGURE 8.12 Morningstar Research Debt Yields

As WACC is the weighted average cost of Capital, we need to weight the Cost of Equity and Cost of Debt, by the amount of equity in the business versus debt. Is it is important to note we should take the most current value of the business's equity (market capitalization) and the most current value of the business's debt (if available). Taking Walmart's most current stock price of $73.82, and diluted shares outstanding of 3, 365, 741, 174 (see Chapter 1 for more about diluting shares), gives us a market capitalization of $248, 459.0MM (after dividing the shares by 1, 000, 000 so we can continue reporting in $MM). We can hardcode the most current Walmart stock price into Cell O22 and the shares outstanding (divide the shares by 1, 000, 000) into Cell O23. The equity value in Cell O24 will just be the product:

```
=O22*O23
```

For total Walmart debt, we can add the latest value of short-term debts, long-term debts, and capital leases as per the latest balance sheet. This gives us $4, 047 + $1, 975 + $326 + $44, 070 + $3, 009, or $53, 427. Or, in Cell O21,

```
='Balance Sheet'!F20+'Balance Sheet'!F24+'Balance Sheet'!F25+'Balance Sheet'!F28+'Balance Sheet'!F29
```

We can apply all these inputs to the WACC formula:

$$\text{WACC} = \frac{\text{Debt}}{(\text{Debt}+\text{Equity})} \times \text{Cost of Debt} \times (1 - \text{Tax}\%) + \frac{\text{Equity}}{(\text{Debt}+\text{Equity})} \times \text{Cost of Equity}$$

Or, in Cell L27,

=O21/(O21+O24)*L25*(1-'Income Statement'!F34)+O24/(O21+O24)*L24

The WACC is 5.16 percent. (See Table 8.4.)

We can now discount each cash flow using the formula:

$$UFCF \times (1 + Discount\,Rate)^{period}$$

where "discount rate" is the WACC.

Let's first link the WACC calculated in Cell L27 into Cell F17 to discount the cash flows. So, in Cell F17,

=L27

TABLE 8.4 Walmart WACC

Cost of Capital			
Risk-Free Rate	2.93%	Debt YE 2012	53,427.0
Market Risk Premium	6.00%	Stock Price	73.82
Beta	0.42	Shares Outstanding	3,366.0
Cost of Equity	5.45%	Equity Value	248,459.0
Cost of Debt	5.625%		
WACC	5.16%		

And in Cell G17, we will discount the 2013 UFCF using the discount rate (WACC) in Cell F17 and the period of one year from Cell G16. Or, in Cell G17,

=G14/(1+$F$17)^G16

Notice we have put dollar signs in the reference to Cell F17. We can copy this formula to the right and all references will shift except for the reference to the discount rate, which we want to be fixed.

Finally, in Cell G18 we can sum up all of the discounted cash flows (see Table 8.5):

=SUM(G17:K17)

So $67, 814.7MM is the expected PV of Walmart's cash flows for the next five years. To complete the total value of the business we need to calculate the terminal value, which is the implied value of the business after Year 5. As previously discussed, we will calculate it two ways and compare.

EBITDA Method

For this method, we will take the 2017E EBITDA and multiply it by some EBITDA multiple. It is most common to take an average or median multiple from the comparable company analyses. We also recommend, as another conservative approach, to calculate Walmart's current EBITDA multiple. Let's take the latter approach, and upon conclusion we will cross-check with the comparable company analysis multiples.

TABLE 8.5 Discounted Cash Flow Analysis

Discounted Cash Flow Analysis (in U.S.$ millions)	Actuals			Estimates				
Period Ending January 31	2010A	2011A	2012A	2013E	2014E	2015E	2016E	2017E
Unlevered Free Cash Flow								
EBIT				27,888.4	29,115.5	30,026.8	30,582.4	30,750.8
Depreciation & Amortization				8,591.7	9,188.6	9,809.4	10,448.9	11,101.1
Deferred Taxes				715.9	1,003.5	791.0	596.3	411.4
Other				318.0	318.0	318.0	318.0	318.0
Changes in Working Capital				891.3	423.2	352.8	271.3	181.3
Capital Expenditures				(14,213.0)	(14,923.7)	(15,520.6)	(15,986.2)	(16,305.9)
Taxes				(9,203.2)	(9,608.1)	(9,908.8)	(10,092.2)	(10,147.8)
Total Unlevered Free Cash Flow				**14,989.1**	**15,517.0**	**15,868.5**	**16,138.5**	**16,308.9**
Net Present Value Calulation								
Period				1.0	2.0	3.0	4.0	5.0
Discounted Cash Flow			5.16%	14,254.1	14,032.4	13,646.6	13,198.2	12,683.5
Total Net Present Value				**67,814.7**				

In Cell F21, we can pull in the company's 2017E EBITDA:

```
=K7+K8
```

We can now calculate Walmart's current (2012) EBITDA multiple in Cell F22. The formula is:

$$\frac{\text{Enterprise Value}}{\text{2012 EBITDA}}$$

where enterprise value is the market capitalization plus debts, capital leases, non-controlling interests, preferred securities, less cash and cash equivalents. We already have calculated the market capitalization in Cell O24 and the total debt in Cell O21. We have already included capital leases in the total debt value, and it does not look like the company has listed preferred securities, so we only need to include the non-controlling interests and remove cash to get to enterprise value. Notice Walmart has two non-controlling interest lines: "Redeemable noncontrolling interest" (Row 31) and "Noncontrolling interests" (Row 38). So we will add total debt plus the non-controlling interests less cash to the market capitalization for enterprise value. And we can then divide that enterprise value by the 2012 EBITDA on the income statement to get the multiple. So Cell F22 will look like this:

```
=(O24+O21+'Balance Sheet'!F31+'Balance Sheet'!F38-'Balance
Sheet'!F8)/'Income Statement'!F21
```

This gives us 8.7×. Again, we will later compare this with the EBITDA multiples in the comparable company analysis. It's a tough judgment call to determine which are the most appropriate multiples to use. Once the analysis is done we can play around with a few different multiples to see if it has a major effect on the overall analysis.

So for the terminal value in Cell F23, we multiply the multiple by the 2017 EBITDA, or

```
=F21*F22
```

We then need to discount this value back to PV. As this EBITDA is based on a 2017 metric, we will discount this back five years. So, in F24 we will have

```
=F23/(1+F17)^K16
```

So the PV of Walmart's terminal value is $281, 669.1MM. (See Table 8.6.)

TABLE 8.6 EBITDA Method Terminal Value

EBITDA Method	
Exit Year EBITDA	41,851.9
Multiple	8.7×
Terminal Value	362,181.9
Net Present Value	**281,669.1**

In order to get the total enterprise value for Walmart based on the EBITDA method, we would add this to the PV of UFCF calculated in Cell G18. We have a place for this calculation in Cell E34, and we can calculate this now. First, we can pull in the total of PV of cash flows into Cell E32; that would be "=G18." We can then pull in the PV of terminal value into Cell E33, or "=F24." Now we can just add those two rows together into Cell E34: "=E32+ E33."

This gives us $349, 483.8MM. (See Table 8.7.)

Let's now take a look at the equity value. Directly below Cell E34 is a place for net debt, non-controlling interests, and preferred securities. Let's calculate this using the total debt we have already calculated in Cell O21, adding in non-controlling interests and subtracting cash from the balance sheet. So in E35 we have

```
=O21+'Balance Sheet'!F38 + 'Balance Sheet'!F31-'Balance Sheet'!F8
```

TABLE 8.7 Enterprise Value Based on the EBITDA Method

Discounted Cash Flow Total Valuation	**EBITDA Method**
Total of Present Value of Cash Flows	67, 814.7
Present Value of Terminal Value	281, 669.1
Total Enterprise Value	**349, 483.8**
Net Debt, Non-controlling Interests, Preferred Securities	
Equity Value	
Share Count (millions)	
Estimated Equity Value per Share	

TABLE 8.8 Equity Value per Share Based on the EBITDA Method

Discounted Cash Flow Total Valuation	**EBITDA Method**
Total of Present Value of Cash Flows	67, 814.7
Present Value of Terminal	281, 669.1

Value	
Total Enterprise Value	**349, 483.8**
Net Debt, Non-Controlling Interests, Preferred Securities	51, 727.0
Equity Value	**297, 756.8**
Share Count (millions)	3, 365.7
Estimated Equity Value per Share	**$88.47**

We can subtract this from the enterprise value. So Cell E36 will read "=E34-E35, " which gives us $297, 756.8MM.

We can now divide the equity value by the number of shares outstanding calculated in O23. So, E37 can read "=O23." And we can divide, so Cell E38 will be "=E36/E37." This will give us $88.47 based on the EBITDA method. (See Table 8.8.)

We can compare this to the company's current stock price of $73.82. This may suggest that the company is still slightly undervalued. Or maybe we had chosen a multiple that is too high. However, this is the multiple at which the company is currently trading. This is the thought process one should be going through. We need to continue with the analysis and compare with other methods before we can truly formulate an opinion. Let's compare this to the enterprise and equity value we get from the perpetuity method for more input.

Perpetuity Method

The perpetuity method takes the company's final projected UFCF and applies the perpetuity formula:

$$\frac{\text{UFCF} \times (1+g)}{r-g}$$

where *r* is the WACC and *g* is some low growth rate. We recommend in this market environment using something low (close to 1 percent or 2 percent). Remember that this percentage represents the annual growth of cash for the entire life of the business. Even though the growth rate of cash now is higher, we assume as the business approaches maturity, the growth would be very low.

In Cell F26, we can pull in the 2017 UFCF, from Cell K14, or

```
=K14
```

In Cell F27, let's for now hardcode 1% in as a safe growth assumption. As with the multiple in the EBITDA method, we reserve the ability to adjust these assumptions once the valuation is complete.

In Cell F28, we can calculate the perpetuity formula:

```
=F26*(1+F27)/(F17-F27)
```

And we can discount this to PV in Cell F29:

```
=F28/(1+F17)^K16
```

This gives us $308, 174.4MM. (See Table 8.9.)

It is interesting to note that this value is higher than the net PV based on the EBITDA terminal value. Remember: The perpetuity method is more fundamentally based on the financials than the EBITDA method, as the EBITDA method is highly dependent on the market multiple. A big

exception here is if there is some major Walmart announcement that would force us to lower our projections, but that has not happened. Let's calculate on.

We can now calculate total enterprise value based on the perpetuity method. First, we can pull in the total PV of cash flows into Cell F32, so that would be "=G18." We can then pull in the PV of terminal value into Cell F33, or "=F29." Now we can just add those two rows together into Cell F34: "=F32+F33, " which gives us $375, 989.1MM.

We have already calculated net debt, non-controlling interests, and preferred securities in Cell E35, so we can just use that number cell F35, or Cell F35 will be "=E35." We can subtract this from the enterprise value. So Cell F36 will read "= F34-F35, " which gives us $324, 262.1MM.

TABLE 8.9 Perpetuity Method Terminal Value

Perpetuity Method	
Unlevered Free Cash Flow	16,308.9
Growth Rate	1%
Terminal Value	396,263.5
Net Present Value	**308,174.4**

TABLE 8.10 Discounted Cash Flow Total Valuation

Discounted Cash Flow Total Valuation	**EBITDA Method**	**Perpetuity Method**
Total of Present Value of Cash Flows	67, 814.7	67, 814.7
Present Value of Terminal Value	281, 669.1	308, 174.4
Total Enterprise Value	**349, 483.8**	**375, 989.1**
Net Debt, Non-Controlling Interests, Preferred Securities	51, 727.0	51, 727.0
Equity Value	**297, 756.8**	**324, 262.1**
Share Count (millions)	3, 365.7	3, 365.7
Estimated Equity Value per Share	**$88.47**	**$96.34**

We can now divide the equity value by the number of shares outstanding calculated in Cell O23. So, Cell F37 can read "=O23." And we can divide in Cell F38, which will be "=F36/F37." This will give us $96.34 based on the perpetuity method. (See Table 8.10.)

Is this an appropriate value for Walmart? What does the Street say? How about adjusting the

variables? We will first consider the other two valuation methods and utilize all to discuss possible answers to these questions in the final chapter.

CHAPTER 9

Comparable Company Analysis

As we discussed earlier, the comparable company analysis ("comps") compares companies that are similar in size, product, and geography to the company we are valuing. It is not always easy to find good comparable companies, but we have some recommended sources:

- Company financials. Often, the company lists who it believes its competitors are in the market. Performing a quick word search on "competitors" or "competition" in the 2012 Walmart annual report, for example, reveals the following note:

The Retail Industry

We operate in the highly competitive retail industry in all of the countries we serve. We face strong sales competition from other discount, department, drug, dollar, variety and specialty stores, warehouse clubs and supermarkets. Many of these competitors are national, regional or international chains, as well as internet-based retailers and catalog businesses. We compete with a number of companies for prime retail site locations, as well as in attracting and retaining quality employees (whom we call "associates"). We, along with other retail companies, are influenced by a number of factors including, but not limited to: general economic conditions, cost of goods, consumer disposable income, consumer debt levels and buying patterns, consumer credit availability, interest rates, customer preferences, unemployment, labor costs, inflation, deflation, currency exchange fluctuations, fuel and energy prices, weather patterns, climate change, catastrophic events, competitive pressures and insurance costs. Further information on certain risks to our Company can be located in "Item 1A. Risk Factors" in our Annual Report on Form 10-K for the fiscal year ended January 31, 2012.

Unfortunately, Walmart does not name its exact competitors, but if it had, this would be a good start to selecting comps.

- **Subscription data sources**. Bloomberg, Thompson, or other subscription data sources will have sections that list comparable companies.
- **Public data sources**. If you do not have access to paid subscription sources, public sources such as Yahoo! Finance are helpful. Yahoo! Finance has two good sources:

  1. One can go to finance.yahoo.com and type in "WMT" (the ticker for Walmart in the "Finance Search" bar. On the left, we can select "Competitors, " which brings us to a page which suggests Target and Costco as key competitors.

  2. We can also pull up a list of all the companies in the same industry as Walmart. If we select "Industry" on the left side, we pull up a market overview of Walmart's industry. You will notice a box listing the top performing companies within that industry. At the

bottom right side of the box there is a link "View All." This will take us to a downloadable list of all public companies within that industry. From this list we can research and select companies that could be similar to Walmart.

Although Yahoo! Finance has suggested Target and Costco as key competitors, these still may not be the best comparable companies. Walmart is such a large business in terms of market capitalization that arguably there are no companies quite like it. Walmart's business model versus those of Costco and Target is also arguably not completely comparable. However, for purposes of explaining how to properly use comparable companies as a tool, let's assume these two companies are Walmart's best comparable companies. As a note, a good comps analysis could have five to 10 or more companies. But, remember that a big drawback to the comps analysis is it may be difficult to find comparable companies similar enough to the company we are valuing. Walmart may be a good example of that; it is just so much larger than anyone else in its industry.

LAST TWELVE MONTHS (LTM)

Before calculating the comparable metrics, it is important to understand Last Twelve Months calculations. The LTM is a method to calculate the most recent financials based on combining annual reports (10-Ks) with quarterly reports (10-Qs). Let's look at Walmart, for example. Although we constructed the Walmart model on an annual basis, for purposes of the comps, it is important to look at Walmart's LTM metrics. Comps are meant to be a "current" analysis, so we would like to incorporate the most up-to-date financials regardless of whether they are quarterly or annual financials. We could have done this in the full-scale model, but our goal in the model constructed in Part One was to get an accurate annual representation of Walmart. Depending on the requirements of the model, one could have created a quarterly representation of Walmart—a quarterly model—but we decided that was unnecessary for our valuation.

When we go back to the "Walmart Investor Relations" section of its web site, we notice it has produced two additional quarterly reports after its annual report. So, it not only has financial data from February 1, 2011, to January 31, 2012, but it has a "Q1" report showing financial results from February 1, 2012, to April 30, 2012; and a "Q2" report showing financial results from May 1, 2012, to July 31, 2012. So, technically, we can get Walmart financial results for the LTM up to July 31, 2012, or August 1, 2011, to July 31, 2012.

Annual 2012	Q1 2012	Q2 2012
2/1/2011 - 1/31/2012	2/1/2012 - 4/30/2012	5/1/2012-7/31/2012

In order to use this information to get 12 months of financials through July 31, 2012, we can first add the annual report financials to the Q1 and Q2 financials. When we say "add, " we mean taking revenue (for example, adding the 2012 revenue from the annual report to the Q1 and Q2 revenue). This gives us 18 months of financials (from February 1, 2011, to July 31, 2012), so we now need to subtract six months of financials or two quarters (from February 1, 2011, to July 31, 2011) in order to get a representation of
12 months of revenue through July 31, 2012.

Annual 2012		Q1 2012	Q2 2012
2/1/2011 - 1/31/2012		2/1/2012 - 4/30/2012	5/1/2012-7/31/2012
Q1 2011	Q2 2011		
2/1/2011 - 4/30/2011	5/1/2011-7/31/2011		

So, in other words, if we take the 2012 annual report numbers, add the Q1 2012 and Q2 2012 numbers, and subtract the Q1 2011 numbers and Q2 2011 numbers, we will get financials from August 1, 2011, to July 31, 2012:

$$\text{LTM} = \text{Annual 2012} + \text{Q1 2012} + \text{Q2 2012} - \text{Q1 2011} - \text{Q2 2011}$$

CALENDARIZATION

Another important method to note before calculating comps is calendarization. A comps analysis should not only be current, but should also be adjusted so that the financial ending dates is the same with each company compared in the comps analysis. So, for example, Walmart's annual financials are reported from February 1, 2011, to January 31, 2012. Now what if a Walmart comparable company is reported on a slightly different cycle? Let's take an example of a company that produced an annual report ending on November 30, 2011. Now, we can add that company's Q1 report, presumably ending three months later, on February 29, 2012, to the annual report, and subtract the prior year's Q1 report.

Annual 2011	Q1 2012
12/1/2010 - 11/30/2011	12/1/2011 - 2/29/2012

Q1 2011
12/1/2010 - 2/28/2011

This should give us 12 months' financials from March 1, 2011, through February 29, 2012—close but not exactly in line with Walmart's annual financials of February 1, 2011, to January 31, 2012. To resolve this, we can adjust the Q1 financials to give us an equivalent of two months' financials from December 1, 2011, to January 31, 2012, by simply taking two-thirds of the Q1 data. So, 2/3 × Q1 2012 would give us an estimate of data from December 1, 2011, to January 31, 2012, and similarly 2/3 × Q1 2011 would give us an estimate of data from December 1, 2010, to January 31, 2011. We can then add the newly adjusted Q1 2012 and subtract the newly adjusted Q1 2011.

Annual 2011	Q1 2012 x 2/3
12/1/2010 - 11/31/2011	12/1/2011 - 1/31/2012

Q1 2011 x 2/3
12/1/2010 - 1/31/2011

This would give us an estimate of financial data from February 1, 2011, to January 31, 2012.

Note, however: As February only has 29 days in 2012, it could be considered more accurate to make adjustments based on days as opposed to months. We will illustrate this with Costco.

COSTCO AS A COMPARABLE COMPANY

We will not step through creating comparable metrics for every company, as it is quite redundant. However, we will do so for Costco, as it is a bit more challenging than the others, and requires some calendarization and income statement adjustments. The Costco annual report can be found in the "Investor Relations" section of its web site. It is important to note: When creating a comps output page we are most often interested in generating at least one year historical data (2012 YE), LTM data, and one year projected data (2013 E), each of which should be in line with the target company's (in our case, Walmart) data.

Costco Adjusted 2012 Year End

We can find Costco's financials at www.sec.gov. If you type in "Costco" in the company search box at the top right, three entity names come up: "COSTCO CO INC." "Costco Wholesale CORP." "COSTCO WHOLESALE CORP /NEW." Through trial and error, we realize it's the bottom entity that contains all of Costco's financials. You have to scroll past many smaller documents and hunt for the relevant 10-Q and 10-K reports.

We first notice on October 19, 2012 Costco produced an annual report for the period ending

September 2, 2012. This is quite different from Walmart's reported year end of January 31, 2012, so we need to do some calendarization adjustments. Costco's 2011 annual report will be more useful here, ending August 28, 2011. We could try to add Costco's quarterly 2012 data and subtract the Quarterly 2011 data to get financials spanning from February 1, 2011, to January 31, 2012. However, Costco does something a little outside of the norm. It has reported its quarterly financials in 12-week blocks, instead of the standard three-month blocks. This does cause slight differences, as some months have more than four weeks. We found the following note on page 4 of the Costco 2012 annual report:

> *We report on a 52/53-week fiscal year, consisting of thirteen four-week periods and ending on the Sunday nearest the end of August. The first three quarters consist of three periods each, and the fourth quarter consists of four periods (five weeks in the thirteenth period in a 53-week year). The material seasonal impact in our operations is an increased level of net sales and earnings during the winter holiday season. References to 2012 relate to the 53-week fiscal year ended September 2, 2012. References to 2011 and 2010 relate to the 52-week fiscal years ended August 28, 2011 and August 29, 2010, respectively.*

So Costco reports its Q1 2012 from August 29, 2011, to November 20, 2011, and Q2 from November 21, 2011, to February 12, 2012.

Annual 2011	Q1 2012	Q2 2012
8/30/2010 - 8/28/2011	8/29/2011-11/20/2011	11/21/2011-2/12/2012

Q1 2011	Q2 2011
8/30/2010-11/21/2010	11/22/2010-2/13/2011

So adjusting by adding Q1 2012 and Q2 2012 and subtracting Q1 2011 and Q2 2011, we get the 12-month period spanning from February 14, 2011, to February 12, 2012. This is 12 days off from Walmart's ending date of January 31, 2012. In this case, we can adjust the Costco Q2 2012 by 12 of the 84 days (84 is calculated by 7 days a week $\times$ 12 weeks in their quarter) to get to a year-end date of January 31, 2012. However, instead of multiplying the Q2 2012 financials by 12/84 (which would give us 12 days of that quarter), we want to multiply by 72 (which is 84 $-$ 12) / 84, or the number of days in the quarter we want to include in the analysis; if we want to shave 12 days off of that quarter, it's better to look at it as keeping 72 of the 84 days. Further, we want to remove Q1 2011 in full and the portion of Q2 2011 from November 22, 2010, through January 31, 2011, or 72/84 days.

Annual 2011	Q1 2012	Q2 2012 x 72 / 84
8/30/2010 - 8/28/2011	8/29/2011-11/20/2011	11/21/2011-1/31/2012

Q1 2011	Q2 2011 x 72 / 84
8/30/2010-11/21/2010	11/22/2010-1/31/2011

So, for Costco year-end data in line with Walmart's data, we will need key income statement data based on its annual report, its Q1 and Q2 2012 quarterly reports, and its Q1 and Q2 2011 quarterly reports. We will then create adjusted data to match Walmart's year-end dates.

Costco Adjusted LTM Data

We now need LTM data in-line with Walmart's LTM period defined as August 1, 2011, through July 31, 2012. This will be difficult, as Costco's year end is 8/28/2011, which means to have a period beginning at August 1, 2011, we would need 4Q information. 4Q is typically not reported in an individual report because it is the last quarter of a 12-month period; that information is often not reported separately, but reported as annual data in an annual report. So taking the annual 2011 data and subtracting the Q1 2011, Q2 2011, and Q3 2011 data would give us Q4 2011 period from May 9, 2011, through August 28, 2011.

Annual 2011			
8/30/2010–8/28/2011 (52 weeks)			
Q1 2011	Q2 2011	Q3 2011	Q4 2011
8/30/2010–11/21/2010	11/22/2010–2/13/2011	2/14/2011–5/8/2011	5/9/2011–8/28/2011

Notice this period is slightly longer than 12 weeks. Costco, reporting three quarters of 12 weeks

each, is left with 16 weeks to report as a Q4; this is unusual. We now need to adjust that 4Q data, as we only want the period from August 1, 2011, through August 28, 2011, or 28/112 (16 weeks × 7 days) days. In this case we are going to add the August 1, 2011 – August 28, 2011 period to the 2012 annual information, so we actually want to identify that period, not what's left over. Arguably, we could have simply taken the annual data and adjusted for 28/365 days, but we always recommend breaking down the financials as much as you can (in this case the quarterly data), for more accuracy and to capture possible seasonality swings in the business.

Again we need to back into the Q4 2012, by subtracting the first three quarters from the 2012 annual data, which will give us the 17-week period (Costco reports 2012 in a 53-week year, as per the Costco note on page 4 of its annual report) from May 7, 2012, through September 2, 2012. We can then adjust out the ending 33 of 119 (17 weeks × 7 days) days.

Annual 2012			
8/29/2011–9/2/2012(53 weeks)			
Q1 2012	Q2 2012	Q3 2012	Q4 2012
8/29/2011–11/20/2011	11/21/2011–2/12/2012	2/13/2012–5/6/2012	5/7/2012–9/2/2012

So if we add the adjusted Q4 2011 to the 2012 annual data and subtract the adjusted Q4 2012 data, we should have the period from August 1, 2011, through July 31, 2012.

Annual 2012	+	Q4 2011 × 28/112	−	Q4 2012 × 33/119
8/29/2011–9/2/2012 (53 weeks)		8/1/2011–8/28/2011		8/1/2012–9/2/2012

So for Costco LTM data to be in line with Walmart's data, we will need the Q1, Q2, and Q3 2012 quarterly reports and the 2012 annual report. The 2012 reports will contain 2011 data, so we don't need to pull the 2011 data separately. We will then create adjusted data to match Walmart's year-end dates and LTM data. We will finally make one-year projections and create our comparable metrics.

Costco Annual Income Statement

Revenue

As we have already learned the nuances of an income statement and making projections, we will not go into stepping through linking Costco's income statement cell by cell. Rather, we will focus on illustrating just the new and complex situations as they arise. That being said, the first step is to lay out a simple income statement, which will be a basis for our comparable metrics. In the Excel file template, there is a Costco tab, "Costco Comp, " already set up to support the annual and quarterly data.

We will first input the annual data from the 2012 10-K or annual report, then we will go back to complete the quarterly data. When looking at the sales, we notice they are separated into "Net sales" and "Membership fees, " so we will input them as two separate revenue lines and total them. (See Table 9.1 and Figure 9.1.)

COGS and Operating Expenses

Next, there are three separate cost items that we need to identify and separate into the relevant categories. We can determine by its title that "Merchandise costs are most likely costs of goods sold. "Selling, general, and administrative" are the operating expenses. The third line, "Preopening expenses, " is not quite a standard line for a business to have. Some research reveals the following on page 55 of the Costco annual report:

FIGURE 9.1 Costco Annual Report Income Statement

COSTCO WHOLESALE CORPORATION

CONSOLIDATED STATEMENTS OF INCOME

(dollars in millions, except per share data)

	53 weeks ended September 2, 2012	52 weeks ended August 28, 2011	52 weeks ended August 29, 2010
REVENUE			
Net sales	$ 97,062	$ 87,048	$ 76,255
Membership fees	2,075	1,867	1,691
Total revenue	99,137	88,915	77,946
OPERATING EXPENSES			
Merchandise costs	86,823	77,739	67,995
Selling, general and administrative	9,518	8,691	7,848
Preopening expenses	37	46	26
Operating income	2,759	2,439	2,077
OTHER INCOME (EXPENSE)			
Interest expense	(95)	(116)	(111)
Interest income and other, net	103	60	88
INCOME BEFORE INCOME TAXES	2,767	2,383	2,054
Provision for income taxes	1,000	841	731
Net income including noncontrolling interests	1,767	1,542	1,323
Net income attributable to noncontrolling interests	(58)	(80)	(20)
NET INCOME ATTRIBUTABLE TO COSTCO	$ 1,709	$ 1,462	$ 1,303
NET INCOME PER COMMON SHARE ATTRIBUTABLE TO COSTCO:			
Basic	$ 3.94	$ 3.35	$ 2.97
Diluted	$ 3.89	$ 3.30	$ 2.92
Shares used in calculation (000's)			
Basic	433,620	436,119	438,611
Diluted	439,373	443,094	445,970
CASH DIVIDENDS DECLARED PER COMMON SHARE	$ 1.03	$ 0.89	$ 0.77

TABLE 9.1 Costco Historical Revenue

Costco Income Statement	**2011A**	**2012A**
Revenue		
Sales	87, 048.0	97, 062.0
Membership fees	1, 867.0	2, 075.0
Total revenue	**88, 915.0**	**99, 137.0**
Y/Y revenue growth (%)		

Preopening Expenses

Preopening expenses related to new warehouses, new regional offices and other startup operations are expensed as incurred.

This sounds like it could be a non-recurring or extraordinary charge as it is related to startup operations. One would assume startup operations are not frequent. However, Costco reports this expense every year. So, it may be a standard part of Costco's business model to open a number of new stores each year. On the other hand, one must also consider if this is a comparable expense. In other words, do other comparable companies report such an expense? If they do, do they report it in the same way? Or if they do not, is it because they consider the expense non-core to the operations, or do they not have the same business model? If this is an indicator that they do not have the same business model, then maybe this is not a good comparable company to use. However, if other companies do report similar items but consider them non-operating, then we may want to move Costco's line item into the non-recurring event section also in order to have an EBITDA that's comparable to the other companies. These are all the types of considerations one should be thinking about when building a comparable company analysis. Often there is no 100 percent correct answer and it may depend on an analyst's particular point of view. Again, the key for a good analyst is to come up with an educated point of view and be consistent. Because we want to illustrate the concept of moving expenses into the non-recurring events section and treating taxes accordingly, let's consider this expense as non-core and move it to the non-recurring expenses section. For now, we just exclude it from our EBITDA calculation and move on to the other expenses.

Depreciation

You may have noticed there is no line for depreciation, so we need to find out where it could be by conducting some research. Conducting a word search on "depreciation" in the Costco annual report reveals depreciation expense of $855 in 2011 and $908 in 2012. (See Figure 9.2.)

We need to know which of the income statement expenses contain depreciation so we can separate it out. Continuing with our word search, we find the following note on page 54 of the Costco 2012 annual report:

Merchandise Costs

Merchandise costs consist of the purchase price of inventory sold, inbound and outbound shipping charges and all costs related to the Company's depot operations, including freight from depots to selling warehouses, and are reduced by vendor consideration. Merchandise costs also include salaries, benefits, and depreciation on production equipment in fresh foods and certain ancillary departments.

So, depreciation expense is contained within the merchandise costs. However, reading on, we reveal the following:

Selling, General and Administrative Expenses

Selling, general and administrative expenses consist primarily of salaries, benefits and workers' compensation costs for warehouse employees, other than fresh foods departments and certain ancillary businesses, as well as all regional and home office employees, including buying personnel. Selling, general and administrative expenses also include utilities, bank charges, rent and substantially all building and equipment depreciation, as well as other operating costs incurred to support warehouse operations.

FIGURE 9.2 Costco Historical Depreciation

COSTCO WHOLESALE CORPORATION

CONSOLIDATED STATEMENTS OF CASH FLOWS

(dollars in millions)

	53 Weeks ended September 2, 2012	52 Weeks ended August 28, 2011	52 Weeks ended August 29, 2010
CASH FLOWS FROM OPERATING ACTIVITIES			
Net income including noncontrolling interests	$ 1,767	$ 1,542	$ 1,323
Adjustments to reconcile net income including noncontrolling interests to net cash provided by operating activities:			
Depreciation and amortization	908	855	795
Stock-based compensation	241	207	190
Excess tax benefits on stock-based awards	(64)	(45)	(10)
Other non-cash operating activities, net	28	23	(40)
Deferred income taxes	(3)	84	7
Changes in operating assets and liabilities, net of the initial consolidation of Costco Mexico at the beginning of fiscal 2011:			
Increase in merchandise inventories	(490)	(642)	(213)
Increase in accounts payable	338	804	445
Other operating assets and liabilities, net	332	370	283
Net cash provided by operating activities	3,057	3,198	2,780

This also mentions that depreciation expense is also contained in the selling, general, and administrative expenses, or the depreciation expense is spread out between the two expenses. Unfortunately we don't have further information to determine how the depreciation expense is allocated among the SG&A and the COGS, so we need to make a best guess as to which expense contains a majority of the depreciation. We could also make a rational assumption to spread depreciation out, but either way, we are mostly concerned with an adjusted EBITDA. So, although we try to be as accurate as possible, as long as depreciation is removed from EBITDA we have achieved our primary goal.

Further research on depreciation discusses that the amortization of capital leases is included in this number and is part of SG&A, so that along with the other notes discovered can lead us to assume a majority of the depreciation is contained within SG&A. Although we are not 100 percent sure, let's go with that assumption. When we hardcode in the SG&A expenses we need to be sure to exclude the depreciation expenses as we have done with Walmart and list the depreciation as a separate line item. (See Table 9.2.)

TABLE 9.2 Costco Historical Expenses

Costco Income Statement	Actuals 2011A	2012A
Revenue		
Sales	87,048.0	97,062.0
Membership fees	1,867.0	2,075.0
Total revenue	**88,915.0**	**99,137.0**
Y/Y revenue growth (%)		
Cost of goods sold	77,739.0	86,823.0
COGS as a % of revenue	87%	88%
Gross profit	**11,176.0**	**12,314.0**
Gross profit margin (%)	13%	12%
Operating expenses		
Selling, general, and administrative	7,836.0	8,610.0
SG&A as a % of revenue	9%	9%
Total operating expenses	**7,836.0**	**8,610.0**

TABLE 9.3 Interest Income and Other, Net

	2012	2011	2010
Interest income, net	$ 49	$41	$23
Foreign-currency transactions gains (losses), net	40	9	14
Earnings from affiliates and other, net	14	10	51
Interest income and other, net	$103	$60	$88

Interest

The company clearly lists interest expense. However, the next line is labeled "Interest Income and Other, Net." As discussed in Chapter 1, we need to identify and separate the interest income from the other income. We found Table 9.3 from page 56 of the Costco annual report.

This clearly highlights the portion related to interest income. The other two line items (foreign-currency transactions gains (losses), net and earnings from affiliates and other, net) are other income line items. We discussed "earnings from affiliates" in Chapter 1; however, we called them "earnings from non-controlling interests." Now, as discussed in Chapter 1, it is arguable whether these should be considered as part of EBITDA. Further, the foreign-currency transactions gains (losses), net, could be considered extraordinary. Let us consider them as part of the core income, but not directly operating. In other words, we will not consider them extraordinary, but they will be located after EBIT. Often in valuation, other income is considered as part of EBIT. (Please see Chapter 1 to review that discussion.)

Since we have decided not to include other income as part of EBIT, we can now lay out everything up to EBIT. Notice we calculated a depreciation metric as a percent of revenue. (See Table 9.4.) This is so we can make simple depreciation projections. We will discuss this when we make our Costco projections.

We can now add the "Other income" and "Interest expense" lines. (See Table 9.5.) Be reminded that income is increasing the net income or EBT. So we can either 1) adjust the totals to add other income, or 2) put income line items in parentheses, which make the values effectively

negative. So if our EBT continues to subtract line items down, subtracting an income line item will result in a double negative, effectively increasing the EBT. Although the logic is a bit backward, this keeps consistency in the formulas and is easier to read; items in parenthesis increase EBT or net income, and items not in parenthesis decrease net income. There is no right or wrong way to treat the signs here, but just double-check to make sure everything is totaling properly.

Taxes

In 2011 we see Costco paid $841 in taxes as per its annual report. But because we had removed an expense (preopening expenses) from the income statement, we need to adjust this tax number. If we effectively move an expense from above the net income line to below, the taxes associated with that expense should go with it. We suggest handling this by calculating the effective tax rate paid in a given period, then using that tax rate to calculate adjusted taxes. So, if the company had paid $841 in 2011 taxes, based on a $2, 383 EBT, the company had an implied tax rate of 35.3 percent (841/2383) (see Figure 9.1). So we recommend directly in the "Tax%" row to hardcode in the calculation behind the 35.3 percent tax rate and to footnote it. Once that is done, for "Income tax expense, " we can simply multiply the EBT we have calculated as $2, 429 times the new rate to get the implied taxes incurred if the non-recurring expense was not included above the net income: $857.2. We do the same for 2012, where the implied tax rate is the $1, 000 in taxes paid divided by the reported EBT of $2, 767: 36.1 percent. (See Table 9.6.)

TABLE 9.4 Costco Historical EBITDA and EBIT

Costco Income Statement	Actuals	
	2011A	2012A
Revenue		
Sales	87,048.0	97,062.0
Membership fees	1,867.0	2,075.0
Total revenue	**88,915.0**	**99,137.0**
Y/Y revenue growth (%)		
Cost of goods sold	77,739.0	86,823.0
COGS as a % of revenue	*87%*	*88%*
Gross profit	**11,176.0**	**12,314.0**
Gross profit margin (%)	*13%*	*12%*
Operating expenses		
Selling, general, and administrative	7,836.0	8,610.0
SG&A as a % of revenue	*9%*	*9%*
Total operating expenses	**7,836.0**	**8,610.0**
EBITDA	**3,340.0**	**3,704.0**
EBITDA margin (%)	*4%*	*4%*
Depreciation and amortization	855.0	908.0
D&A % of Revenue	*1%*	*1%*
EBIT	**2,485.0**	**2,796.0**
EBIT margin (%)	*3%*	*3%*

TABLE 9.5 Costco Historical Other Income and Interest

Costco Income Statement	Actuals	
	2011A	2012A
EBIT	**2,485.0**	**2,796.0**
EBIT margin (%)	*3%*	*3%*
Other income		
Equity in earnings of unconsolidated affiliates	(10.0)	(14.0)
Foreign-currency transactions gains (losses), net	(9.0)	(40.0)
Total other income	**(19.0)**	**(54.0)**
Interest		
Interest expense	116.0	95.0
Interest income	(41.0)	(49.0)
Net interest expense	**75.0**	**46.0**
Earnings before tax (EBT)	**2,429.0**	**2,804.0**
IBT margin (%)	*3%*	*3%*

TABLE 9.6 Costco Historical Net Income (before Non-Controlling Interests)

Costco Income Statement	Actuals	
	2011A	2012A
Earnings before tax (EBT)	**2,429.0**	**2,804.0**
IBT margin (%)	*3%*	*3%*
Income tax expense	857.2	1,013.4
Effective tax rate (%)	*35%*	*36%*
Net income (before noncontrolling interests)	**1,571.8**	**1,790.6**

TABLE 9.7 Costco Historical Adjusted Net Income

Costco Income Statement	Actuals	
	2011A	2012A
Net income (before non-controlling interests)	**1,571.8**	**1,790.6**
Income attributable to non-controlling interests	80.0	58.0
% of net income	*5%*	*3%*
Net income (adjusted)	**1,491.8**	**1,732.6**

Non-Controlling Interests

There is one final line before non-recurring events: “Payments to non-controlling interests.” (See Table 9.7.) We can list these expenses under the net income. We have also calculated a metric dividing the non-controlling interests into the net income for our projections.

Non-Recurring Events

Once non-recurring events have been identified and removed from the income statement (if any exist) we need to place them in this section. Be sure you have read the section prior to this (“Taxes”) to be sure you have not only removed the expenses but have readjusted the reported taxes. Once that is complete, each expense you have moved from above EBT to below, must be tax affected. (There may be several advanced exceptions.) Let’s look at “Preopening expenses” as an example. In 2011, the $46 charge should be moved down to the section; however, it must also be tax affected. So we need to include $46 × (1 − Tax%) in order to be sure we have properly moved the tax savings associated with that expense from the tax line to the non-recurring events line. The tax rate we use is the same tax rate calculated in the “Effective tax rate” line of that period, so it is best if we just link up to that exact cell. This should give you $29.8. (See Table 9.8.)

It is good to note that despite our adjustments along the way, our net income (as reported) line matches the “Net income attributable to Costco” reported on the Costco financials.

Earnings per Share (EPS)

We can now calculate our EPS metric for use in our comps analysis. Notice we have two versions of our EPS, one based on “Net income (adjusted)” and the other based on “net income (as reported).” This is so we can tie the “Net income (as reported)” metric to the financials to be sure we are using all of the number as reported, but we really want to use the “clean” “Net income (adjusted)” numbers for our comps. The formula for calculating EPS is Net Income/Shares. The shares are found at the bottom of the income statement, and we have listed both the basic and diluted, just as we did with Walmart. Note that Costco has listed its shares in thousands, while the dollar amounts throughout the income statement have been reported in millions. This is indicated by the note at the top of the income statement “Dollars in millions, except per share data.” And the reported shares in the income statement is labeled “Shares used in calculation (000s), ” meaning it is reported in thousands. So, in order for the EPS to calculate properly, we need to divide the share count by 1, 000. We could have just adjusted the EPS formula by 1, 000, but we have decided to just hardcode the shares in millions to avoid confusion. For example, the 2012 basic shares reports as 433, 620; we hardcoded as 433.620. (Notice the decimal replaced the comma converting thousands into millions.) We now see that the EPS (as reported) matches the Costco income statement. (See Table 9.9 and Figure 9.1.)

TABLE 9.8 Costco Historical Net Income (as Reported)

Costco Income Statement	Actuals	
	2011A	2012A
Net income (adjusted)	1,491.8	1,732.6
Non-recurring events		
Preopening expenses	29.8	23.6
Other items	0.0	0.0
Total non-recurring events	29.8	23.6
Net income (as reported)	1,462.0	1,709.0

Costco Quarterly Income Statement

We can now repeat the exact same process for the quarterly reports. We will not step through building the quarters line by line, as it is too repetitive. You should have the skills by now to lay out an income statement. (It may be helpful to re-read Chapter 1 and this chapter.) Make sure you are typing in the numbers correctly, and be careful of the signs and totals. Always check for typos and make sure the formulas are calculating properly. Make sure you are using the "12-Weeks Ended" data as that refers to a quarter period. A couple of additional items of note are different in the Costco quarterly reports:

- **Provision for impaired assets, closing costs, and other, net**. You may have noticed an additional expense entitled "Provision for impaired assets, closing costs and other, net." Let's treat this as an extraordinary item and move it down to the non-recurring events section. Use the "other" line within that section. Make sure as you move it into the non-recurring section it is multiplied by 1 − Tax%.
- **Depreciation.** Make sure to take the 12-week depreciation expense. The depreciation expense contained in the Q2 and Q3 cash flow statement is accumulated (24 and 36 weeks). There is a table on page 19 of the quarterly report that contains 12-week depreciation numbers.
- **Other income.** You need to search for the other income note as we had done in the annual report. (Hint: Word-search for "interest income.") This breakout, however, does not identify "equity in earnings of unconsolidated affiliates." Rather, they mention "foreign-currency transactions and other, net" in the early quarters. In the later quarters, they have identified "foreign-currency transactions gains (losses), net" and "other, net." We suppose Costco had done some reclassification. We had kept everything dealing with foreign currency in the same line and we had put "other, net" in the "equity in earnings of unconsolidated affiliates" line. As long as everything totals into the other income section, we are okay. Be careful of the signs; make sure everything is flowing in the proper direction.

TABLE 9.9 Costco Historical Income Statement

Costco Income Statement

	Actuals	
	2011A	**2012A**
Revenue		
Sales	87,048.0	97,062.0
Membership fees	1,867.0	2,075.0
Total revenue	**88,915.0**	**99,137.0**
Y/Y revenue growth (%)		
Cost of goods sold	77,739.0	86,823.0
COGS as a % of revenue	87%	88%
Gross profit	**11,176.0**	**12,314.0**
Gross profit margin (%)	13%	12%
Operating expenses		
Selling, general, and administrative	7,836.0	8,610.0
SG&A as a % of revenue	9%	9%
Total operating expenses	**7,836.0**	**8,610.0**
EBITDA	**3,340.0**	**3,704.0**
EBITDA margin (%)	4%	4%
Depreciation and amortization	855.0	908.0
D&A % of revenue	1%	1%
EBIT	**2,485.0**	**2,796.0**
EBIT margin (%)	3%	3%
Other income		
Equity in earnings of unconsolidated affiliates	(10.0)	(14.0)
Foreign-currency transactions gains (losses), net	(9.0)	(40.0)
Total other income	**(19.0)**	**(54.0)**
Interest		
Interest expense	116.0	95.0
Interest income	(41.0)	(49.0)
Net interest expense	**75.0**	**46.0**
Earnings before tax (EBT)	**2,429.0**	**2,804.0**
IBT margin (%)	3%	3%

Costco Income Statement

	Actuals	
	2011A	**2012A**
Income tax expense	857.2	1,013.4
Effective tax rate (%)	35%	36%
Net income (before non-controlling interests)	**1,571.8**	**1,790.6**
Income attributable to non-controlling interests	80.0	58.0
% of net income	5%	3%
Net income (adjusted)	**1,491.8**	**1,732.6**
Non-recurring events		
Preopening expenses	29.8	23.6
Other items	0.0	0.0
Total non-recurring events	29.8	23.6
Net income (as reported)	1,462.0	1,709.0
Earnings per share (as reported)		
Basic	3.35	3.94
Diluted	3.30	3.89
Earnings per share (adjusted)		
Basic	3.42	4.00
Diluted	3.37	3.94
Average common shares outstanding		
Basic	436	434
Diluted	443	440

When all inputs are completed you should have what is shown in Table 9.10.

Backing into Q4

We need to solve for the Q4 financials. We can easily do this by taking the year-end financials and subtracting the first three quarters. For example, the Q4 2011 revenue will be calculated by:

YE 2011 Revenue – Q3 2011 Revenue – Q2 2011 Revenue – Q1 2011 Revenue

This should give $27, 588 in Q4 revenue. We can repeat this process for every line item in Q4 for 2011 and 2012. However we need to take note of several adjustments:

- Make sure to continue to calculate total line items as normal. In other words, Q4 gross profit should be calculated as one normally would by taking Q4 Revenue − Q4 COGS, not YE 2011 − Q3 2011 − Q2 2011 − Q1 2011.
- The income tax expense line item should be calculated like revenue,

COGS, or any other expense line item. So, Q3 2011 Income Tax = YE 2011 Income Tax − Q3 2011 Income Tax − Q2 2011 Income Tax − Q1 2011 Income Tax. We can then back into the implied tax rate by dividing the income tax calculated into the EBT. For 2011, you should get $277.4 in taxes and 35 percent for the implied tax rate.

- The shares outstanding is an outstanding balance item. In other words, this is not an item that is reported over a period, where the sum of the quarters would equal the year end. Effectively, any adjustments to the share count would be captured in the year end. So, we can just take the year-end balance of shares for Q4. Q4 2011 shares will be the YE 2011 share count.

TABLE 9.10 Costco Historical Quarterly Income Statement

Costco Income Statement	Actuals							
	Q1 2011A	Q2 2011A	Q3 2011A	2011A	Q1 2012A	Q2 2012A	Q3 2012A	2012A
Revenue								
Sales	18,823.0	20,449.0	20,188.0	87,048.0	21,181.0	22,508.0	21,849.0	97,062.0
Membership fees	416.0	426.0	435.0	1,867.0	447.0	459.0	475.0	2,075.0
Total revenue	**19,239.0**	**20,875.0**	**20,623.0**	**88,915.0**	**21,628.0**	**22,967.0**	**22,324.0**	**99,137.0**
Y/Y revenue growth (%)								
Cost of goods sold	16,757.0	18,235.0	18,067.0	77,739.0	18,931.0	20,139.0	19,543.0	86,823.0
COGS as a % of revenue	*87%*	*87%*	*88%*	*87%*	*88%*	*88%*	*88%*	*88%*
Gross profit	**2,482.0**	**2,640.0**	**2,556.0**	**11,176.0**	**2,697.0**	**2,828.0**	**2,781.0**	**12,314.0**
Gross profit margin (%)	*13%*	*13%*	*12%*	*13%*	*12%*	*12%*	*12%*	*12%*
Operating expenses								
Selling, general and administrative	1,750.0	1,843.0	1,795.0	7,836.0	1,940.0	1,967.0	1,949.0	8,610.0
SG&A as a % of revenue	*9%*	*9%*	*9%*	*9%*	*9%*	*9%*	*9%*	*9%*
Total operating expenses	**1,750.0**	**1,843.0**	**1,795.0**	**7,836.0**	**1,940.0**	**1,967.0**	**1,949.0**	**8,610.0**
EBITDA	**732.0**	**797.0**	**761.0**	**3,340.0**	**757.0**	**861.0**	**832.0**	**3,704.0**
EBITDA margin (%)	*4%*	*4%*	*4%*	*4%*	*4%*	*4%*	*4%*	*4%*
Depreciation and amortization	191.0	195.0	196.0	855.0	205.0	209.0	202.0	908.0
D&A % of Revenue	*1%*	*1%*	*1%*	*1%*	*1%*	*1%*	*1%*	*1%*
EBIT	**541.0**	**602.0**	**565.0**	**2,485.0**	**552.0**	**652.0**	**630.0**	**2,796.0**
EBIT margin (%)	*3%*	*3%*	*3%*	*3%*	*3%*	*3%*	*3%*	*3%*
Other income								
Equity in earnings of unconsolidated affiliates	0.0	(3.0)	(3.0)	(10.0)	0.0	(2.0)	(4.0)	(14.0)
Foreign-currency transactions gains (losses), net	2.0	8.0	8.0	(9.0)	(26.0)	3.0	(3.0)	(40.0)
Total other income	**2.0**	**5.0**	**5.0**	**(19.0)**	**(26.0)**	**1.0**	**(7.0)**	**(54.0)**
Interest								
Interest expense	26.0	27.0	27.0	116.0	27.0	27.0	19.0	95.0
Interest income	(7.0)	(9.0)	(10.0)	(41.0)	(11.0)	(11.0)	(11.0)	(49.0)
Net interest expense	**19.0**	**18.0**	**17.0**	**75.0**	**16.0**	**16.0**	**8.0**	**46.0**
Earnings before tax (EBT)	**520.0**	**579.0**	**543.0**	**2,429.0**	**562.0**	**635.0**	**629.0**	**2,804.0**
IBT margin (%)	*3%*	*3%*	*3%*	*3%*	*3%*	*3%*	*3%*	*3%*
Income tax expense	177.5	206.1	196.3	857.2	228.7	217.7	219.4	1,013.4
Effective tax rate (%)	*34%*	*36%*	*36%*	*35%*	*41%*	*34%*	*35%*	*36%*
Net income (before noncontrolling interests)	**342.5**	**372.9**	**346.7**	**1,571.8**	**333.3**	**417.3**	**409.6**	**1,790.6**
Income attributable to noncontrolling interests	20.0	21.0	17.0	80.0	8.0	18.0	19.0	58.0
% of net income	*6%*	*6%*	*5%*	*5%*	*2%*	*4%*	*5%*	*3%*

	Actuals							
	Q1 2011A	Q2 2011A	Q3 2011A	2011A	Q1 2012A	Q2 2012A	Q3 2012A	2012A
Net income (adjusted)	322.5	351.9	329.7	1,491.8	325.3	399.3	390.6	1,732.6
Non-recurring events								
Preopening expenses	7.9	2.6	5.1	29.8	5.9	3.9	3.9	23.6
Other items	2.6	1.3	0.6	0.0	(0.6)	1.3	0.7	0.0
Total non-recurring events	10.5	3.9	5.7	29.8	5.3	5.3	4.6	23.6
Net income (as reported)	312.0	348.0	324.0	1,462.0	320.0	394.0	386.0	1,709.0
Earnings per share (as reported)								
Basic	0.72	0.80	0.74	3.35	0.74	0.91	0.89	3.94
Diluted	0.71	0.79	0.73	3.30	0.73	0.90	0.88	3.89
Earnings per share (adjusted)								
Basic	0.74	0.81	0.75	3.42	0.75	0.92	0.90	4.00
Diluted	0.73	0.79	0.74	3.37	0.74	0.91	0.89	3.94
Average common shares outstanding								
Basic	434	437	437	436	434	435	434	434
Diluted	441	443	444	443	441	439	439	440

Note that the Q1 2012 data are actually data ending in November 20 2011. We list this data as Q1 2012 despite the 2011 end date as this data rolls into the year end 2012 annual report.

If completed properly, the Q4 data will look like what we have in Table 9.11.

Costco Year-End and LTM Adjustments

We can now make appropriate adjustments to calculate the year-end and LTM data.

We discussed earlier in this chapter that the adjustment to get to a year-end that's in line with Walmart's for our comps analysis is achieved with the following formula:

$$\text{Costco Adjusted Year End} = \text{YE 2011} + \text{Q1 2012} + (72/84) \times \text{Q2 2012} - \text{Q1 2011} - (72/84) \times \text{Q2 2011}$$

If calculated properly, this should give you $91, 170.9 in sales. As we had done with the Q4 calculation formulas, we want to copy this formula down for every line item in the Costco adjusted year end column, taking care to make the same adjustments (refer to Table 9.12):

- Make sure to continue to calculate total line items as normal. In other words, gross profit should be calculated as one normally would by taking Revenue − COGS.
- The income tax expense line item should be calculated like revenue, COGS, or any other expense line item using the "adjusted year end" formula. We can then back into the implied tax rate by dividing the income tax calculated into the EBT. For 2011, you should get $914.3 in taxes and 33 percent for the implied tax rate.
- The shares outstanding is an outstanding balance item. In other words, this is not an item that is reported over a period, where the sum of the quarters would equal the year end. Effectively, any adjustments to the share count would be captured in the next year end. So, we can just take the 2012 year-end balance.

As we discussed earlier in this chapter, the adjustment to get to an LTM calculation that's in line with Walmart's for our comps analysis is achieved with the following formula:

$$\text{Costco LTM} = \text{YE 2012} + (28/112) \times \text{Q4 2011} - (33/119) \times \text{Q4 2012}$$

If calculated properly, this should give you $95, 217.1 in sales. As we had done with the previous YE adjustment formulas, we want to copy this formula down for every line item in the Costco adjusted year end column, taking care to make the same adjustments to the "totals" of the income tax and the shares. (See Table 9.13.)

TABLE 9.11 Costco Historical Income Statement with Q4 Data

Costco Income Statement	Actuals								
	Q1 2011A	Q2 2011A	Q3 2011A	Q4 2011E	2011A	Q1 2012A	Q2 2012A	Q3 2012A	Q4 2012E
Revenue									
Sales	18,823.0	20,449.0	20,188.0	27,588.0	87,048.0	21,181.0	22,508.0	21,849.0	31,524.0
Membership fees	416.0	426.0	435.0	590.0	1,867.0	447.0	459.0	475.0	694.0
Total revenue	**19,239.0**	**20,875.0**	**20,623.0**	**28,178.0**	**88,915.0**	**21,628.0**	**22,967.0**	**22,324.0**	**32,218.0**
Y/Y revenue growth (%)									
Cost of goods sold	16,757.0	18,235.0	18,067.0	24,680.0	77,739.0	18,931.0	20,139.0	19,543.0	28,210.0
COGS as a % of revenue	*87%*	*87%*	*88%*	*88%*	*87%*	*88%*	*88%*	*88%*	*88%*
Gross profit	**2,482.0**	**2,640.0**	**2,556.0**	**3,498.0**	**11,176.0**	**2,697.0**	**2,828.0**	**2,781.0**	**4,008.0**
Gross profit margin (%)	*13%*	*13%*	*12%*	*12%*	*13%*	*12%*	*12%*	*12%*	*12%*
Operating expenses									
Selling, general, and administrative	1,750.0	1,843.0	1,795.0	2,448.0	7,836.0	1,940.0	1,967.0	1,949.0	2,754.0
SG&A as a % of revenue	*9%*	*9%*	*9%*	*9%*	*9%*	*9%*	*9%*	*9%*	*9%*
Total operating expenses	1,750.0	1,843.0	1,795.0	2,448.0	7,836.0	1,940.0	1,967.0	1,949.0	2,754.0
EBITDA	732.0	797.0	761.0	1,050.0	3,340.0	757.0	861.0	832.0	1,254.0
EBITDA margin (%)	*4%*	*4%*	*4%*	*4%*	*4%*	*4%*	*4%*	*4%*	*4%*
Depreciation and amortization	191.0	195.0	196.0	273.0	855.0	205.0	209.0	202.0	292.0
D&A % of Revenue	*1%*	*1%*	*1%*	*1%*	*1%*	*1%*	*1%*	*1%*	*1%*
EBIT	541.0	602.0	565.0	777.0	2,485.0	552.0	652.0	630.0	962.0
EBIT margin (%)	*3%*	*3%*	*3%*	*3%*	*3%*	*3%*	*3%*	*3%*	*3%*
Other income									
Equity in earnings of unconsolidated affiliates	0.0	(3.0)	(3.0)	(4.0)	(10.0)	0.0	(2.0)	(4.0)	(8.0)
Foreign-currency transactions gains (losses), net	2.0	8.0	8.0	(27.0)	(9.0)	(26.0)	3.0	(3.0)	(14.0)
Total other income	2.0	5.0	5.0	(31.0)	(19.0)	(26.0)	1.0	(7.0)	(22.0)
Interest									
Interest expense	26.0	27.0	27.0	36.0	116.0	27.0	27.0	19.0	22.0
Interest income	(7.0)	(9.0)	(10.0)	(15.0)	(41.0)	(11.0)	(11.0)	(11.0)	(16.0)
Net interest expense	19.0	18.0	17.0	21.0	75.0	16.0	16.0	8.0	6.0

Costco Income Statement	Actuals								
	Q1 2011A	Q2 2011A	Q3 2011A	Q4 2011E	2011A	Q1 2012A	Q2 2012A	Q3 2012A	Q4 2012E
Earnings before tax (EBT)	520.0	579.0	543.0	787.0	2,429.0	562.0	635.0	629.0	978.0
IBT margin (%)	*3%*	*3%*	*3%*	*3%*	*3%*	*3%*	*3%*	*3%*	*3%*
Income tax expense	177.5	206.1	196.3	277.4	857.2	228.7	217.7	219.4	347.5
Effective tax rate (%)	*34%*	*36%*	*36%*	*35%*	*35%*	*41%*	*34%*	*35%*	*36%*
Net income (before noncontrolling interests)	342.5	372.9	346.7	509.6	1,571.8	333.3	417.3	409.6	630.5
Income attributable to noncontrolling interests	20.0	21.0	17.0	22.0	80.0	8.0	18.0	19.0	13.0
% of net income	*6%*	*6%*	*5%*	*4%*	*5%*	*2%*	*4%*	*5%*	*2%*
Net income (adjusted)	322.5	351.9	329.7	487.6	1,491.8	325.3	399.3	390.6	617.5
Non-recurring events									
Preopening expenses	7.9	2.6	5.1	14.2	29.8	5.9	3.9	3.9	9.8
Other items	2.6	1.3	0.6	(4.6)	0.0	(0.6)	1.3	0.7	(1.4)
Total non-recurring events	10.5	3.9	5.7	9.6	29.8	5.3	5.3	4.6	8.5
Net income (as reported)	312.0	348.0	324.0	478.0	1,462.0	320.0	394.0	386.0	609.0
Earnings per share (As reported)									
Basic	0.72	0.80	0.74	1.10	3.35	0.74	0.91	0.89	1.40
Diluted	0.71	0.79	0.73	1.08	3.30	0.73	0.90	0.88	1.39
Earnings per share (adjusted)									
Basic	0.74	0.81	0.75	1.12	3.42	0.75	0.92	0.90	1.42
Diluted	0.73	0.79	0.74	1.10	3.37	0.74	0.91	0.89	1.40
Average common shares outstanding									
Basic	434	437	437	436	436	434	435	434	434
Diluted	441	443	444	443	443	441	439	439	440

TABLE 9.12 Costco Historical YE Adjusted Income Statement

Costco Income Statement	YE Adjusted
Revenue	
Sales	91, 170.9
Membership fees	1, 924.9
Total revenue	**93, 095.7**
Y/Y revenue growth (%)	
Cost of goods sold	81, 333.9
COGS as a % of revenue	*87%*
Gross profit	**11, 761.9**
Gross profit margin (%)	*13%*
Operating expenses	
Selling, general, and administrative	8, 119.0
SG&A as a % of revenue	*9%*

Total operating expenses	**8, 119.0**
EBITDA	**3, 642.9**
EBITDA margin (%)	*4%*
Depreciation and amortization	880.4
D&A % of revenue	*1%*
EBIT	**2, 762.4**
EBIT margin (%)	*3%*
Other income	
Equity in earnings of unconsolidated affiliates	(8.7)
Foreign-currency transactions gains (losses), net	(42.1)
Total other income	**(50.9)**
Interest	
Interest expense	116.9
Interest income	(46.4)
Net interest expense	**70.4**
Earnings before tax (EBT)	**2, 742.9**
IBT margin (%)	*3%*
Income tax expense	914.3
Effective tax rate (%)	*33%*
Net income (before non-controlling interests)	**1, 828.6**
Income attributable to non-controlling interests	65.3
% of net income	*4%*
Net income (adjusted)	**1, 763.3**
Non-recurring events	
Preopening expenses	29.7
Other items	(3.0)
Total non-recurring events	**26.7**
Net income (as reported)	**1, 736.6**
Earnings per share (as reported)	
Basic	4.00
Diluted	3.95
Earnings per share	

(adjusted)	
Basic	4.07
Diluted	4.01
Average common shares outstanding	
Basic	434
Diluted	440

Costco Projections

We can now make 2013E projections for Costco. We have already discussed making projections in Chapter 1 and we do not want to be too redundant; we just want to give high-level suggestions with the understanding that one can get into as much detail as possible.

The first item to consider is: What item do we project off of? One suggestion is to project off of the most recently reported data. In Costco's case that would be 2012. Another suggestion is to report one full year after the adjusted year to stay in line with Walmart's projections. The projections we create will be tweaked and honed to stay in line with Street estimates, so our argument is it wouldn't make a huge difference either way. Let's project off of the 2012 year as it is the most recently reported data.

TABLE 9.13 Costco Historical LTM Income Statement

Costco Income Statement	
	LTM 2012
Revenue	
Sales	95, 217.1
Membership fees	2, 030.0
Total revenue	**97, 247.1**
Y/Y revenue growth (%)	
Cost of goods sold	85, 170.1
COGS as a % of revenue	*88%*
Gross profit	**12, 077.0**
Gross profit margin (%)	*12%*
Operating expenses	
Selling, general, and administrative	8, 458.3
SG&A as a % of revenue	*9%*
Total operating expenses	8, 458.3
EBITDA	**3, 563.1**
EBITDA margin (%)	*4%*
Depreciation and amortization	895.3

D&A % of revenue	*1%*
EBIT	**2, 667.8**
EBIT margin (%)	*3%*
Other income	
Equity in earnings of unconsolidated affiliates	(12.8)
Foreign-currency transactions gains (losses), net	(42.9)
Total other income	(55.6)
Interest	
Interest expense	97.9
Interest income	(48.3)
Net interest expense	**49.6**
Earnings before tax (EBT)	**2, 673.9**
IBT margin (%)	*3%*
Income tax expense	986.3
Effective tax rate (%)	*37%*
Net income (before non-controlling interests)	**1, 687.5**
Income attributable to non-controlling interests	59.9
% of net income	*4%*
Net income (adjusted)	**1, 627.7**
Non-recurring events	
Preopening expenses	24.4
Other items	(0.8)
Total non-recurring events	**23.7**
Net income (as reported)	**1, 604.0**
Earnings per share (as reported)	
Basic	3.70
Diluted	3.65
Earnings per share (adjusted)	
Basic	3.75
Diluted	3.70
Average common shares	

outstanding	
Basic	434
Diluted	440

Revenue

We will conduct our research and look to Street estimates to project revenue as we had done with Walmart.

According to the Yahoo! Financials Analyst Estimates, the Street is averaging a 6.6 percent estimated revenue growth. (See Table 9.14.) So we will use that.

COGS

We will then project each cost as the percentage of revenue we calculated in 2012. For example, we had calculated Costco's 2012 COGS as a percentage of revenue to be 88 percent. We will use 88 percent in 2013, and back into the implied COGS by multiplying 2013 revenue by that 88 percent. However, it is important to note that decimals can make a large difference. So in the previous example, rather than hardcoding 88%, we should link that assumption into the 2013 "COGS as a % of revenue" line. So, for example, have Cell P15 read "=M15." This way we are linking the exact metric. We can then back calculate into the projected COGS. We should do this for every expense up through EBITDA. (See Table 9.15.)

TABLE 9.14 Costco Projected Revenue

Costco Income Statement		
	Estimates	
	2012A	2013E
Revenue		
Sales	97,062.0	103,468.1
		6.6%
Membership fees	2,075.0	2,212.0
		6.6%
Total revenue	**99,137.0**	**105,680.0**
Y/Y revenue growth (%)		6.6%

Depreciation

We can continue with this same approach. (See Table 9.16.) Notice with depreciation we assumed a metric of depreciation as a percentage of sales. For now, we can project depreciation as we did for the COGS and other expenses. If one chooses to add more detail, a full-scale depreciation schedule could be created, as we illustrated with Walmart.

TABLE 9.15 Costco Projected Expenses

Costco Income Statement	Estimates	
	2012A	2013E
Cost of goods sold	**86,823.0**	**92,553.3**
COGS as a % of revenue	*88%*	*88%*
Gross profit	**12,314.0**	**13,126.7**
Gross profit margin (%)	*12%*	*12%*
Operating expenses		
Selling, general, and administrative	8,610.0	9,178.3
SG&A as a % of revenue	*9%*	*9%*
Total operating expenses	**8,610.0**	**9,178.3**
EBITDA	**3,704.0**	**3,894.5**
EBITDA margin (%)	*4%*	*4%*

TABLE 9.16 Costco Projected Depreciation

Costco Income Statement	Estimates	
	2012A	2013E
EBITDA	**3,704.0**	**3,894.5**
EBITDA margin (%)	*4%*	*4%*
Depreciation and amortization	908.0	967.9
D&A % of revenue	*1%*	*1%*
EBIT	**2,796.0**	**2,926.5**
EBIT margin (%)	*3%*	*3%*

Other Income

There are some very small items, such as other income, for which we had chosen the "take the last year" approach. So, we just carried forward the prior year's value. (See Table 9.17.) These items were not clearly dependent on volume so we did not take a percentage of sales. We could have taken an average, minimum, or maximum, or created a cycle (see Chapter 2), but we chose to keep these projections simple.

TABLE 9.17 Costco Projected Other Income and Interest

Costco Income Statement	Estimates	
	2012A	2013E
EBIT	**2,796.0**	**2,926.5**
EBIT margin (%)	*3%*	*3%*
Other income		
Equity in earnings of unconsolidated affiliates	(14.0)	(14.0)
Foreign-currency transactions gains (losses), net	(40.0)	(40.0)
Total other income	**(54.0)**	**(54.0)**
Interest		
Interest expense	95.0	95.0
Interest income	(49.0)	(49.0)
Net interest expense	**46.0**	**46.0**
Earnings before tax (EBT)	**2,804.0**	**2,934.5**
IBT margin (%)	*3%*	*3%*

TABLE 9.18 Costco Projected Taxes

Costco Income Statement	Estimates	
	2012A	2013E
Earnings before tax (EBT)	**2,804.0**	**2,934.5**
IBT margin (%)	*3%*	*3%*
Income tax expense	1,013.4	1,060.5
Effective tax rate (%)	*36%*	*36%*
Net income (before non-controlling interests)	**1,790.6**	**1,874.0**

Taxes

We also took the 2012 tax rate in order to calculate projected 2013 taxes. (See Table 9.18.) Note that we did not hardcode the tax rate in; rather we linked in the 2012 exact rate.

Non-Controlling Interests

We will take non-controlling interests as a percentage of net income and use that as our 2013 assumption. (See Table 9.19.)

Shares and Earnings per Share

Finally, we used the same share count as 2012. We did not estimate the shares would change much for purposes of projections. The EPS projections are shown in Table 9.20.

This is a “first cut” approach to making basic projections. We can now adjust and compare the EPS we have with the Street’s EPS. Notice our EPS is lower than the Street estimates. This could mean there could be some adjustments that we need to make to our cost structure. Again, notice that lowering our COGS as a percentage of revenue by 1 percent would significantly increase the EPS. The question is: Is the company really expecting costs to decrease in the future, or are the Street’s assumptions too aggressive? This is where further research is required. We have found no indication that costs are decreasing, so we will keep our EPS as is. The complete Costco analysis is shown in Table 9.21.

TABLE 9.19 Costco Projected Non-Controlling Interests

Costco Income Statement	Estimates	
	2012A	2013E
Net income (before non-controlling interests)	1,790.6	1,874.0
Income attributable to non-controlling interests	58.0	58.8
% of net income	*3%*	*3%*
Net income (adjusted)	1,732.6	1,815.2

TABLE 9.20 Costco Projected EPS

Costco Income Statement	Estimates	
	2012A	2013E
Net income (adjusted)	**1,732.6**	**1,815.2**
Non-recurring events		
Preopening expenses	23.6	0.0
Other items	0.0	0.0
Total non-recurring events	**23.6**	**0.0**
Net income (as reported)	**1,709.0**	**1,815.2**
Earnings per share (as reported)		
Basic	3.94	4.19
Diluted	3.89	4.13
Earnings per share (adjusted)		
Basic	4.00	4.19
Diluted	3.94	4.13
Average common shares outstanding		
Basic	434	434
Diluted	440	440

Calculating Comparable Metrics

We now have our core underlying data we will use to calculate our comparable metrics. But first we need to properly calculate the market capitalization and enterprise value of Costco. We need the current stock price and the number of shares outstanding. Costco's stock price can be found at Yahoo! Finance or any online stock resource. As of this writing, its current price is $96.94. For purposes of comparables we need to properly calculate diluted shares outstanding.

TABLE 9.21 Costco Comparable Analysis

Costco Income Statement	Actuals												Estimates
	Q1 2011A	Q2 2011A	Q3 2011A	Q4 2011E	2011A	Q1 2012A	Q2 2012A	Q3 2012A	Q4 2012E	2012A	YE Adjusted	LTM 2011	2013E
Revenue													
Sales	18,823.0	20,449.0	20,188.0	27,588.0	87,048.0	21,181.0	22,508.0	21,849.0	31,524.0	97,062.0	91,170.9	95,217.1	103,468.1
													6.6%
Membership fees	416.0	426.0	435.0	590.0	1,867.0	447.0	459.0	475.0	694.0	2,075.0	1,924.9	2,030.0	2,212.0
													6.6%
Total revenue	**19,239.0**	**20,875.0**	**20,623.0**	**28,178.0**	**88,915.0**	**21,628.0**	**22,967.0**	**22,324.0**	**32,218.0**	**99,137.0**	**93,095.7**	**97,247.1**	**105,680.0**
Y/Y revenue growth (%)													*6.6%*
Cost of goods sold	16,757.0	18,235.0	18,067.0	24,680.0	77,739.0	18,931.0	20,139.0	19,543.0	28,210.0	86,823.0	81,333.9	85,170.1	92,553.3
COGS as a % of revenue	*87%*	*87%*	*88%*	*88%*	*87%*	*88%*	*88%*	*88%*	*88%*	*88%*	*87%*	*88%*	*88%*
Gross profit	**2,482.0**	**2,640.0**	**2,556.0**	**3,498.0**	**11,176.0**	**2,697.0**	**2,828.0**	**2,781.0**	**4,008.0**	**12,314.0**	**11,761.9**	**12,077.0**	**13,126.7**
Gross profit margin (%)	*13%*	*13%*	*12%*	*12%*	*13%*	*12%*	*12%*	*12%*	*12%*	*12%*	*13%*	*12%*	*12%*
Operating expenses													
Selling, general, and administrative	1,750.0	1,843.0	1,795.0	2,448.0	7,836.0	1,940.0	1,967.0	1,949.0	2,754.0	8,610.0	8,119.0	8,458.3	9,178.3
SG&A as a % of revenue	*9%*	*9%*	*9%*	*9%*	*9%*	*9%*	*9%*	*9%*	*9%*	*9%*	*9%*	*9%*	*9%*
Total operating expenses	**1,750.0**	**1,843.0**	**1,795.0**	**2,448.0**	**7,836.0**	**1,940.0**	**1,967.0**	**1,949.0**	**2,754.0**	**8,610.0**	**8,119.0**	**8,458.3**	**9,178.3**
EBITDA	**732.0**	**797.0**	**761.0**	**1,050.0**	**3,340.0**	**757.0**	**861.0**	**832.0**	**1,254.0**	**3,704.0**	**3,642.9**	**3,563.1**	**3,894.5**
EBITDA margin (%)	*4%*	*4%*	*4%*	*4%*	*4%*	*4%*	*4%*	*4%*	*4%*	*4%*	*4%*	*4%*	*4%*
Depreciation and amortization	191.0	195.0	196.0	273.0	855.0	205.0	209.0	202.0	292.0	908.0	880.4	895.3	967.9
D&A % of Revenue	*1%*	*1%*	*1%*	*1%*	*1%*	*1%*	*1%*	*1%*	*1%*	*1%*	*1%*	*1%*	*1%*
EBIT	**541.0**	**602.0**	**565.0**	**777.0**	**2,485.0**	**552.0**	**652.0**	**630.0**	**962.0**	**2,796.0**	**2,762.4**	**2,667.8**	**2,926.5**
EBIT margin (%)	*3%*	*3%*	*3%*	*3%*	*3%*	*3%*	*3%*	*3%*	*3%*	*3%*	*3%*	*3%*	*3%*
Other income													
Equity in earnings of unconsolidated affiliates	0.0	(3.0)	(3.0)	(4.0)	(10.0)	0.0	(2.0)	(4.0)	(8.0)	(14.0)	(8.7)	(12.8)	(14.0)
Foreign-currency transactions gains (losses), net	2.0	8.0	8.0	(27.0)	(9.0)	(26.0)	3.0	(3.0)	(14.0)	(40.0)	(42.1)	(42.9)	(40.0)
Total Other Income	**2.0**	**5.0**	**5.0**	**(31.0)**	**(19.0)**	**(26.0)**	**1.0**	**(7.0)**	**(22.0)**	**(54.0)**	**(50.9)**	**(55.6)**	**(54.0)**

Costco Income Statement	Actuals												Estimates
	Q1 2011A	Q2 2011A	Q3 2011A	Q4 2011E	2011A	Q1 2012A	Q2 2012A	Q3 2012A	Q4 2012E	2012A	YE Adjusted	LTM 2011	2013E
Interest													
Interest expense	26.0	27.0	27.0	36.0	116.0	27.0	27.0	19.0	22.0	95.0	116.9	97.9	95.0
Interest income	(7.0)	(9.0)	(10.0)	(15.0)	(41.0)	(11.0)	(11.0)	(11.0)	(16.0)	(49.0)	(46.4)	(48.3)	(49.0)
Net interest expense	19.0	18.0	17.0	21.0	75.0	16.0	16.0	8.0	6.0	46.0	70.4	49.6	46.0
Earnings before tax (EBT)	520.0	579.0	543.0	787.0	2,429.0	562.0	635.0	629.0	978.0	2,804.0	2,742.9	2,673.9	2,934.5
IBT margin (%)	*3%*	*3%*	*3%*	*3%*	*3%*	*3%*	*3%*	*3%*	*3%*	*3%*	*3%*	*3%*	*3%*
Income tax expense	177.5	206.1	196.3	277.4	857.2	228.7	217.7	219.4	347.5	1,013.4	914.3	986.3	1,060.5
Effective tax rate (%)	*34%*	*36%*	*36%*	*35%*	*35%*	*41%*	*34%*	*35%*	*36%*	*36%*	*33%*	*37%*	*36%*
Net income (before noncontrolling interests)	342.5	372.9	346.7	509.6	1,571.8	333.3	417.3	409.6	630.5	1,790.6	1,828.6	1,687.5	1,874.0
Income attributable to noncontrolling interests	20.0	21.0	17.0	22.0	80.0	8.0	18.0	19.0	13.0	58.0	65.3	59.9	58.8
% of net income	*6%*	*6%*	*5%*	*4%*	*5%*	*2%*	*4%*	*5%*	*2%*	*3%*	*4%*	*4%*	*3%*
Net income (adjusted)	322.5	351.9	329.7	487.6	1,491.8	325.3	399.3	390.6	617.5	1,732.6	1,763.3	1,627.7	1,815.2
Non-recurring events													
Preopening expenses	7.9	2.6	5.1	14.2	29.8	5.9	3.9	3.9	9.8	23.6	29.7	24.4	0.0
Other items	2.6	1.3	0.6	(4.6)	0.0	(0.6)	1.3	0.7	(1.4)	0.0	(3.0)	(0.8)	0.0
Total non-recurring events	10.5	3.9	5.7	9.6	29.8	5.3	5.3	4.6	8.5	23.6	26.7	23.7	0.0
Net income (as reported)	312.0	348.0	324.0	478.0	1,462.0	320.0	394.0	386.0	609.0	1,709.0	1,736.6	1,604.0	1,815.2
Earnings per share (as reported)													
Basic	0.72	0.80	0.74	1.10	3.35	0.74	0.91	0.89	1.40	3.94	4.00	3.70	4.19
Diluted	0.71	0.79	0.73	1.08	3.30	0.73	0.90	0.88	1.39	3.89	3.95	3.65	4.13
Earnings per share (adjusted)													
Basic	0.74	0.81	0.75	1.12	3.42	0.75	0.92	0.90	1.42	4.00	4.07	3.75	4.19
Diluted	0.73	0.79	0.74	1.10	3.37	0.74	0.91	0.89	1.40	3.94	4.01	3.70	4.13
Average common shares outstanding													
Basic	434	437	437	436	436	434	435	434	434	434	434	434	434
Diluted	441	443	444	443	443	441	439	439	440	440	440	440	440

Diluted Shares Outstanding and the Treasury Stock Method

Diluted shares outstanding is a count of all the shares outstanding in the market plus any stock options and warrants that are exercisable today. What if every stock option holder who holds in-the-money option contracts decides to exercise on those options today? How many shares would be in the market? The diluted share count attempts to estimate that number of shares. There are several resources we can use to obtain the total number of Costco diluted shares outstanding, but the best way to obtain that diluted share count is to calculate the number ourselves. The best starting point is to pull the most recently reported financial SEC filing. In this case, it is Costco's 2012 10-K (annual report), shown in Figure 9.3. Each financial filing should have posted on the front page the most current count of basic shares outstanding as of filing date.

This is found on page 2 of the Costco annual filing. At the bottom is a line that reads "The number of shares outstanding of the registrant's common stock as of October 5, 2012 was 432, 424, 379." We will use this number as the basic share count. Now, in order to get a count of

diluted shares, we need to find all notes regarding options and warrants that may be held. Performing a quick word search on "Options" reveals the note. (See Figure 9.4.)

Figure 9.4 represents all outstanding options and their respective exercise price. If the options are in-the-money, meaning the options are exercisable, or the current stock price is above the exercise price, then technically these options could be exercised and should be included into our diluted share count. The column on the far right estimates the average exercise price of the options as $40.90, which is far below the current stock price of $96.94. So, all 3, 161 options are currently in-the-money. This means that the options holder can technically exercise these options at (on average) $40.90 per option. Or, if all options are exercised, they would all total a value of $129, 284.9 ($40.90 × 3, 161). Note that this value is in thousands, so let's multiply by a thousand to get $129, 284, 900. Now there is a common method called the treasury method that states that if these options are exercised at 40.90, they would most likely be bought back at the current stock price. So, if we divide the total value of options exercised by the current stock price ($129, 284, 900/$96.94), we get 1, 333, 658 shares bought back. (We rounded down, as a partial share does not exist.) In other words, 3, 161, 000 options have been exercised, but 1, 333, 658 bought back, gives us 1, 827, 342 (3, 161, 000 − 1, 333, 658) new shares outstanding. We add this number to the basic shares outstanding to get 434, 251, 721.

FIGURE 9.3 SEC: Costco's 2012 10-K

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UNITED STATES
SECURITIES AND EXCHANGE COMMISSION
Washington, D.C. 20549

FORM 10-K

☒ ANNUAL REPORT PURSUANT TO SECTION 13 OR 15(d) OF THE SECURITIES EXCHANGE ACT OF 1934

For the fiscal year ended September 2, 2012

or

☐ TRANSITION REPORT PURSUANT TO SECTION 13 OR 15(d) OF THE SECURITIES EXCHANGE ACT OF 1934

Commission file number 0-20355

Costco Wholesale Corporation
(Exact name of registrant as specified in its charter)

Washington	91-1223280
(State or other jurisdiction of incorporation or organization)	(I.R.S. Employer Identification No.)

999 Lake Drive, Issaquah, WA 98027
(Address of principal executive offices) (Zip Code)

Registrant's telephone number, including area code: **(425) 313-8100**

Securities registered pursuant to Section 12(b) of the Act:

Title of each class	Name of each exchange on which registered
Common Stock, $.005 Par Value	The NASDAQ Global Select Market

Securities registered pursuant to Section 12(g) of the Act: None

Indicate by check mark if the registrant is a well-known seasoned issuer, as defined in Rule 405 of the Securities Act. YES ☒ NO ☐

Indicate by check mark if the registrant is not required to file reports pursuant to Section 13 or Section 15(d) of the Act. YES ☐ NO ☒

Indicate by check mark whether the registrant (1) has filed all reports required to be filed by Section 13 or 15(d) of the Securities Exchange Act of 1934 during the preceding 12 months (or for such shorter period that the registrant was required to file such reports), and (2) has been subject to such filing requirements for the past 90 days. YES ☒ NO ☐

Indicate by check mark whether the registrant has submitted electronically and posted on its corporate Web site, if any, every Interactive Data File required to be submitted and posted pursuant to Rule 405 of Regulation S-T (§ 232.405 of this chapter) during the preceding 12 months (or for such shorter period that the registrant was required to submit and post such files). YES ☒ NO ☐

Indicate by check mark if disclosure of delinquent filers pursuant to Item 405 of Regulation S-K (§ 229.405 of this chapter) is not contained herein, and will not be contained, to the best of registrant's knowledge, in definitive proxy or information statements incorporated by reference in Part III of this Form 10-K or any amendment to this Form 10-K. ☐

Indicate by check mark whether the registrant is a large accelerated filer, an accelerated filer, a non-accelerated filer, or a smaller reporting company. See the definitions of "large accelerated filer," "accelerated filer" and "smaller reporting company" in Rule 12b-2 of the Exchange Act.

Large accelerated filer ☒	Accelerated filer ☐
Non-accelerated filer ☐ (Do not check if a smaller company)	Smaller reporting company ☐

Indicate by check mark whether the registrant is a shell company (as defined in Rule 12b-2 of the Act). YES ☐ NO ☒

The aggregate market value of the voting stock held by non-affiliates of the registrant as of February 10, 2012 was $36,229,506,282

The number of shares outstanding of the registrant's common stock as of October 5, 2012 was 432,424,379

DOCUMENTS INCORPORATED BY REFERENCE

Portions of the Company's Proxy Statement for the Annual Meeting of Shareholders to be held on January 24, 2013, are incorporated by reference into Part III of this Form 10-K.

FIGURE 9.4 Options Outstanding and Exercisable

The following is a summary of stock options outstanding at the end of 2012:

	Options Outstanding and Exercisable		
Range of Prices	Number of Options (in 000's)	Weighted-Average Remaining Contractual Life	Weighted-Average Exercise Price
$30.41–$37.35	1,232	1.27	$ 35.95
$37.44–$43.79	1,699	2.57	43.77
$45.99–$46.46	230	2.56	46.19
	3,161	2.06	$ 40.90

	Costco Diluted Shares
Share Price	$96.94
Number of basic shares outstanding	432, 424, 379
Number of outstanding options (in the money)	3, 161, 000
Average option strike price	$40.90
Total option proceeds	129, 284, 900
Treasury stock method shares repurchased	1, 333, 658
Additional shares outstanding	1, 827, 342
Total diluted shares outstanding	**434, 251, 721**

In order to get a complete diluted share count, it is crucial to be thorough in making sure you have found all stock options, employee stock options, and warrants that may be exercisable. Often this will be spread across several tables. It is also recommended to see if there are any additional filings posted announcing the issuance of options or warrants that would not have been captured in the annual or quarterly filings.

Costco Market Value and Enterprise Value

With our total diluted share count, we can easily calculate Costco's market value by multiplying diluted shares by the current share price, giving us $42, 096.4MM. We can now look to the balance sheet to calculate enterprise value. To be completely thorough, one should perform extensive research to see if there are any "off balance sheet" obligations that may need to be considered at part of enterprise value.

	Costco Enterprise Value
Market value	**42, 096.4**
Short-term debt	0.0
Long-term debt (includes current portions)	1, 382.0
Capital lease obligations	0.0
Convertible debt	0.0
Preferred securities	0.0

Minority interest	157.0
Less: Cash & equivalents	(3, 528.0)
Enterprise value	**$40, 107.4**

TABLE 9.22 Costco Summary Operating Statistics

Operating Statistics

	Sales			EBIT			D&A			EBITDA			EPS		
	12A	LTM	13E	12A	LTM	13E	12A	LTM	13E	12A	LTM	13E	12A	LTM	13E
Company	$MM	$MM	$MM	$MM	$MM	$MM	$MM	$MM	$MM	$MM	$MM	$MM	$/share	$/share	$/share
Walmart															
COSTCO	93,095.7	97,247.1	105,680.0	2,762.4	2,667.8	2,926.5	880.4	895.3	967.9	3,643	3,563	3,894	$4.01	$3.70	$4.13

TABLE 9.23 Costco Multiples

Comparable Companies Analysis

(in U.S.$ millions)

	Current Stock Price$	Market Capitalization (Value)$	Enterprise Value	Price / Earnings			E.V. / Revenue			E.V. / EBIT			E.V. / EBITDA		
				12A	LTM	13E	12A	LTM	13E	12A	LTM	13E	12A	LTM	13E
Company			$MM	×	×	×	×	×	×	×	×	×	×	×	×
Walmart															
COSTCO	$96.94	42,096.4	40,107.4	24.2×	26.2×	23.5×	0.4×	0.4×	0.4×	14.5×	15.0×	13.7×	11.0×	11.3×	10.3×

TABLE 9.24 Comparable Company Analysis

Comparable Companies Analysis

(in U.S.$ millions)

	Current Stock Price$	Market Capitalization (Value)$	Enterprise Value	Price / Earnings			E.V. / Revenue			E.V. / EBIT			E.V. / EBITDA		
				12A	LTM	13E	12A	LTM	13E	12A	LTM	13E	12A	LTM	13E
Company			$MM	×	×	×	×	×	×	×	×	×	×	×	×
Walmart	$73.82	248,459.0	300,010.0	16.3×	15.4×	15.1×	0.7×	0.7×	0.6×	11.3×	11.0×	10.8×	8.6×	8.4×	8.2×
COSTCO	$96.94	42,096.4	40,107.4	24.2×	26.2×	23.5×	0.4×	0.4×	0.4×	14.5×	15.0×	13.7×	11.0×	11.3×	10.3×
Target	$62.79	41,486.5	58,558.5	14.7×	14.2×	13.6×	0.8×	0.8×	0.8×	11.0×	11.1×	10.7×	7.9×	7.8×	7.6×
Dollar General	$47.16	15,854.0	18,338.4	20.2×	17.4×	15.4×	1.2×	1.2×	1.0×	12.3×	11.5×	10.3×	10.4×	9.8×	8.7×
Dollar Tree	$37.74	8,697.1	8,581.6	9.4×	16.1×	15.3×	1.3×	1.2×	1.2×	11.0×	10.2×	9.8×	9.1×	8.5×	8.1×
Family Dollar Store	$66.12	7,645.8	8,100.9	19.3×	18.6×	16.2×	0.9×	0.9×	0.8×	12.2×	11.8×	10.6×	9.5×	9.1×	8.1×
Median				19.3×	17.4×	15.4×	0.9×	0.9×	0.8×	12.2×	11.5×	10.6×	9.5×	9.1×	8.1×
High				24.2×	26.2×	23.5×	1.3×	1.2×	1.2×	14.5×	15.0×	13.7×	11.0×	11.3×	10.3×
Low				9.4×	14.2×	13.6×	0.4×	0.4×	0.4×	11.0×	10.2×	9.8×	7.9×	7.8×	7.6×

Thanks to analysts Mark Bottini, Mitchel Campbell, Brooks Dudley, Chad Gordon, and Timothy Ma for their assistance on completing the comparable company analysis.

Costco does not seem to have much debt; in fact it apparently has more cash than debt. So, the enterprise value is effectively lower than the market value.

Multiples

We can now use the market value, the enterprise value, and the Costco estimated and adjusted income statement to create comparable metrics. Please refer to the “Comparable Companies” tab in the Excel file. This is where we will calculate all of our multiples. First we recommend pulling in key statistics into the “Operating Statistics” section. If all of the statistics necessary to calculate the multiples are on one page, this helps avoid common linking errors made when calculating the multiples by pulling data in from several sheets. See Table 9.22. The “12A” data is the adjusted year end data we have created, and the EPS is the “diluted adjusted EPS” that we have calculated.

Once we have the core data linked in. We can move to the “comparable company analysis” section shown in Table 9.23. Here we can first pull in the share price, market value, and enterprise value metrics calculated earlier. We can then simply divide to calculate the respective metrics. (Please refer to Chapter 7 for a review of the multiples and the respective formulas.)

We can now repeat this whole process for other companies comparable to Walmart. We also need to link and calculate metrics for Walmart itself. We will not go through this process step by step, as it is too redundant and we have discussed all key lessons learned when we built the Walmart model and the Costco comp. You can view the solution file found on the companion web site (www.wiley.com/go/pignataro) for a fully completed comp analysis. (See Table 9.24)

Notice we added maximum, minimum, and median rows at the bottom. In Chapter 11, we will analyze these multiples for use in Walmart’s valuation.

CHAPTER 10

Precedent Transactons Analysis

As we discussed earlier, the precedent transactions analysis assesses relative value by looking at multiples of historical transactions. The value of our company is relative to the price others have paid for similar companies. So, if we look for other companies similar to ours, that have been acquired, we can compare their purchase multiples to assess approximate value.

Purchase multiples are similar to market multiples, except the numerator in a purchase multiple is based on the price paid for an entity as opposed to the current market value.

IDENTIFYING PRECEDENT TRANSACTIONS

The greatest difficulty in obtaining precedent transactions is identifying relevant transactions. It is important to consider transactions that are similar in industry to the company we are valuing. In other words, to use precedent transactions as a valuation methodology for Walmart, we would have to find acquisitions of other retail corporations similar to Walmart. We also need to consider transactions that are relatively similar financially. Now, this becomes the major problem when the target is Walmart, as the company is so large it is very unlikely that similar transactions exist. Finally, timing is an important factor. We need to consider recent transactions; transactions that have happened many years ago may have happened in a market environment that is no longer relevant to today.

There are several major sources that can provide historical transactions. Securities Data Corporation (SDC) is a leading provider of mergers and acquisitions data. Always double-check the data from such sources; do not assume it is accurate. Use this information as a guide and try to research to back into the relevant statistics using government filings if available. SEC filings can be the best resource for financial data on the company being acquired. A merger proxy contains an “Opinion of Financial Advisor” section, also known as a “Fairness Opinion, ” where the financial advisors detail the valuation supporting the merger. The SEC Form S-4 and an 8-K are other examples of filings that may contain financial details on a merger. The company—s annual report can also contain a paragraph discussing the merger. Finally, other information such as tender offers, news releases, and research reports are good resources that may contain financial information on a merger.

WALMART PRECEDENT TRANSACTION

ANALYSIS

Based on researching the sources previously mentioned we have found several transactions to be relevant; unfortunately, the most recent transaction we found was in 2007. There were several other more recent acquisitions, but they were either way too small or did not even reveal the purchase price. Arguably, we could have included them and just put “NA” for the data, but we wanted to try to find transactions that actually had data to report. This is the difficulty in creating precedent transaction analysis.

Let—s take a look at the KKR acquisition of Dollar General. Dollar General is a small-box discount retailer based in Goodlettsville, Tennessee. This is not the best and most relevant transaction, but it has strong enough data to provide a good illustration of how to put together a precedent transaction.

The first pieces of data we need are the purchase price, equity value, and enterprise value. We then need to find some financial statistics on Dollar General in order to calculate multiples. We have found several supporting documents to help obtain this information at www.sec.gov. This is the first place we recommend going to in order to search for public filings reporting merger detail.

At the homepage, you can search on the top right for “Dollar General Corp.” (See Figure 10.1.)

FIGURE 10.1 U.S. Securities and Exchange Commission

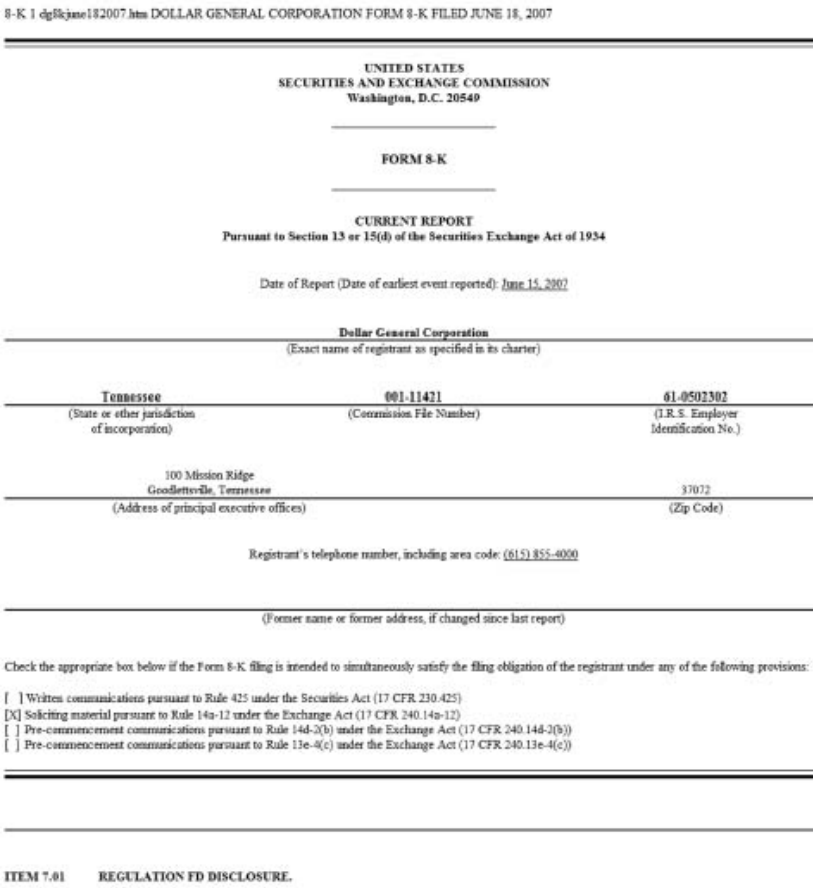
Doing so will reveal a list of all public documents filed for that entity. We want to pull filings around the date of the transaction, which occurred on July 6, 2007. So in the box named “Prior to: (YYYYMMDD), ” let—s type in “20070706” to obtain a list all filings prior to the merger date. We have to do some poking around to find good documents containing technical financial information. If we click on the latest 8-K, dated July 6, 2007, we can scroll down to the “Introductory Note” section, which reads:

> *On July 6, 2007, Dollar General Corporation (the “Company”) completed its merger (the “Merger”) with Buck Acquisition Corp. (“Merger Sub”), pursuant to which the Company has been acquired by entities affiliated with Kohlberg Kravis Roberts & Co. L.P., GS Capital Partners, an affiliate of Goldman Sachs, Citi Private Equity, and other equity co-investors*.

This “Introductory Note” is a general description of the document purpose, which indicates an announcement that the merger has been completed. Unfortunately, this does not reveal much technical information.

After some more poking around we find an 8-K dated June 18, 2007. (See Figure 10.2.)

FIGURE 10.2 Dollar General 8-K



8-K 1 dg8kjune182007.htm DOLLAR GENERAL CORPORATION FORM 8-K FILED JUNE 18, 2007

UNITED STATES
SECURITIES AND EXCHANGE COMMISSION
Washington, D.C. 20549

FORM 8-K

CURRENT REPORT
Pursuant to Section 13 or 15(d) of the Securities Exchange Act of 1934

Date of Report (Date of earliest event reported): June 15, 2007

Dollar General Corporation
(Exact name of registrant as specified in its charter)

Tennessee	001-11421	61-0502302
(State or other jurisdiction of incorporation)	(Commission File Number)	(I.R.S. Employer Identification No.)
100 Mission Ridge Goodlettsville, Tennessee		37072
(Address of principal executive offices)		(Zip Code)

Registrant's telephone number, including area code: (615) 855-4000

(Former name or former address, if changed since last report)

Check the appropriate box below if the Form 8-K filing is intended to simultaneously satisfy the filing obligation of the registrant under any of the following provisions:

[ ] Written communications pursuant to Rule 425 under the Securities Act (17 CFR 230.425)
[X] Soliciting material pursuant to Rule 14a-12 under the Exchange Act (17 CFR 240.14a-12)
[ ] Pre-commencement communications pursuant to Rule 14d-2(b) under the Exchange Act (17 CFR 240.14d-2(b))
[ ] Pre-commencement communications pursuant to Rule 13e-4(c) under the Exchange Act (17 CFR 240.13e-4(c))

ITEM 7.01 REGULATION FD DISCLOSURE.

This document contains a very helpful section on page 3 entitled "Sources and Uses of Funds." The sources of funds explains how KKR is going to fund the acquisition (e.g., debt, equity), the uses of funds explains exactly what KKR is going to do with the funds (e.g., purchase price, transactions fees). (See Figure 10.3.)

On the right side of Figure 10.3, we reveal the purchase price of the company is $7,003.6MM. We can use this for the purchase price in Cell D7 of the precedent transactions table. Please refer to the "Precedent transactions" tab in the model template. We can also see from Figure 10.3 on the right that KKR also had to pay off or refinance $219.4MM in debts and $67.7MM in other obligations. We can add these amounts to the purchase price to obtain the purchase price enterprise value. We can now divide the equity and enterprise values by the underlying income statement data of Dollar General in order to obtain usable metrics. Scrolling down reveals a table consisting of historical data on page 11. (See Figure 10.4.)

FIGURE 10.3 Sources and Uses of Funds

Sources of Funds:	Amount (Dollars in millions)	Uses of Funds:	Amount (Dollars in millions)
Senior secured credit facilities:		**Purchase price**	$ 7,003.6
Revolving asset-based credit facility(1)	$ 302.3	Rollover equity(5)	8.0
Term loan facility(2)	2,430.0	Refinance existing indebtedness(7)	219.4
Senior notes	1,350.0	Other retained indebtedness(3)	67.7
Senior subordinated notes	550.0	Estimated fees and expenses(8)	280.0
Other retained indebtedness(3)	67.7		
Equity contribution(4)	2,767.0		
Rollover equity(5)	8.0		
Excess cash on hand(6)	103.7		
Total Sources	$ 7,578.7	**Total Uses**	$ 7,578.7

FIGURE 10.4 Dollar General Historical Income Statement

UNAUDITED PRO FORMA CONDENSED CONSOLIDATED STATEMENTS OF OPERATIONS
(Dollars in Thousands)

	Fiscal Year Ended February 2, 2007		
	Historical	Adjustments	Pro Forma
Net sales	$ 9,169,822	$ —	$ 9,169,822
Cost of goods sold	6,801,617	(2,500) (a)	6,799,117
Gross profit	2,368,205	2,500	2,370,705
Selling general and administrative	2,119,929	56,759 (b)	2,176,688
Operating profit	248,276	(54,259)	194,017
Interest income	(7,002)	—	(7,002)
Interest expense	34,915	401,680 (c)	436,595
Income (loss) before income taxes	220,363	(455,939)	(235,576)
Provision (benefit) for income taxes	82,420	(170,763) (d)	(88,343)
Net income (loss)	$ 137,943	$ (285,176) (e)	$ (147,233)

According to Figure 10.4, the company has $137.9 of net income. We can divide this into the equity value of $7, 003.6 to get a 50.8× Equity Value / Net Income Multiple.

We also notice the company has $9, 169.8MM in revenue. We can divide this into the enterprise value of $7, 290.7MM to get an Enterprise Value / Revenue Multiple of 0.8×.

We can assume the operating profit is EBIT, so dividing that $248.3 number into the enterprise value of $7, 290.7MM to get an Enterprise Value / EBIT multiple of 29.4×.

We need to try and identify depreciation and amortization to back into a proper EBITDA. If we do a word search in this document, we reveal the table on page 18. (See Figure 10.5.)

FIGURE 10.5 Dollar General Financial Summary

	Fiscal Year Ended			Thirteen Weeks Ended		Pro Forma Trailing Fifty-two Week Period Ended
	January 28, 2005	February 3, 2006	February 2, 2007	May 5, 2006	May 4, 2007	May 4, 2007
	(in millions)					
Net income (loss)	$ 344.2	$ 350.2	$ 137.9	$ 47.7	$ 34.9	$ (148.6)
Interest expense, net	22.2	17.2	27.9	4.8	3.6	418.0
Income taxes (benefit)	190.6	194.5	82.4	28.8	16.9	(96.3)
Depreciation and amortization	164.5	186.8	200.6	48.8	50.5	257.8
EBITDA	$ 721.5	$ 748.7	$ 448.9	$ 130.1	$ 105.9	$ 430.9
Adjustments:						
Impact of Project Alpha markdowns (a)			160.0	2.2	(3.9)	153.9
Selling, general and administrative costs related to store closing and inventory clearance activities of Project Alpha (b)			33.1	—	29.3	62.4
Operating losses of stores to be closed (c)			14.9	3.0	5.3	17.2
Hunicane Katrina insurance proceeds			(13.0)	(5.1)	—	(7.9)
Hunicane Katrina expense and write-offs			0.5	0.4	—	0.1
Asset impairments (d)			0.8	—	—	0.8
Management fees (e)			—	—	—	5.0
Project Alpha and merger-related professional fees (f)			1.0	—	6.3	2.3
Distribution center lease adjustment (g)			—	—	—	(6.2)
Adjusted EBITDA			$ 646.2	$ 130.6	$ 142.9	$ 658.5

This shows year-end depreciation and amortization to be $200.6. Adding this to the EBIT of $248.3 gives us $448.9. Notice they already have an EBITDA line calculated, which happens to match the $448.9 we backed in to. So dividing into the Enterprise Value of $7, 290.7MM to get an Enterprise Value / EBITDA Multiple of 16.2×.

Notice the "pro-forma" and "adjusted EBITDA" sections on this table. We have chosen not to include these "pro-forma" adjustments in our analysis. We want a multiple that represents how much KKR paid for the underlying operations before transaction adjustments have been made. Also note we did not include projected metrics, or Last Twelve Month (LTM) metrics. We could have, for example, pulled the 10-Ks and 10-Qs detailing the operations of Dollar around the time of transaction and made such LTM adjustments. However, since each transaction occurred over a slightly different time period, we found making such adjustments to be irrelevant. This is just our point of view. Such precedent transactions are quite subjective, so there are many different versions out there. We recommend adding plenty of footnotes clarifying such variations.

We also finally wanted to point out an example of a merger proxy on this transaction. (See Figure 10.6.)

FIGURE 10.6 Merger Proxy

DEFM14A 1 a2178068zdefm14a.htm PROXY
QuickLinks -- Click here to rapidly navigate through this document

UNITED STATES
SECURITIES AND EXCHANGE COMMISSION
Washington, D.C. 20549

SCHEDULE 14A

Proxy Statement Pursuant to Section 14(a)
of the Securities Exchange Act of 1934

Filed by the Registrant ☒

Filed by a Party other than the Registrant ☐

Check the appropriate box:

☐ Preliminary Proxy Statement

☐ **Confidential, for Use of the Commission Only (as permitted by Rule 14a-6(e)(2))**

☒ Definitive Proxy Statement

☐ Definitive Additional Materials

☐ Soliciting Material Pursuant to §240.14a-12

DOLLAR GENERAL CORPORATION

(Name of Registrant as Specified In Its Charter)

(Name of Person(s) Filing Proxy Statement, if other than the Registrant)

Payment of Filing Fee (Check the appropriate box):

☐ No fee required.

☐ Fee computed on table below per Exchange Act Rules 14a-6(i)(1) and 0-11.

(1) Title of each class of securities to which transaction applies:

(2) Aggregate number of securities to which transaction applies:

(3) Per unit price or other underlying value of transaction computed pursuant to Exchange Act Rule 0-11 (set forth the amount on which the filing fee is calculated and state how it was determined):

(4) Proposed maximum aggregate value of transaction:

(5) Total fee paid:

☒ Fee paid previously with preliminary materials.

☐ Check box if any part of the fee is offset as provided by Exchange Act Rule 0-11(a)(2) and identify the filing for which the offsetting fee was paid previously. Identify the previous filing by registration statement number, or the Form or Schedule and the date of its filing.

On page 20 of the Merger Proxy, there exists a section labeled “Opinion of Financial Advisor” containing a valuation of Dollar conducted by Lazard including financial projections. This is another good document to use as a source.

After completing the analysis of KKR/Dollar General, we have the multiples shown in Table 10.1.

TABLE 10.1 KKR/ Dollar General Precedent Transaction

Precedent Transactions

(in US$ millions)

		Purchase Price		Equity Value /	Enterprise Value /		
Transaction	Transaction Date	Market Value $MM	Enterprise Value $MM	Earnings ×	Revenue ×	EBIT ×	EBITDA ×
KKR / Dollar General	7/6/2007	7,003.6	7,290.7	50.8×	0.8×	29.4×	16.2×

Notice these multiples look quite high, partly because transaction comps are typically high (the purchase price is based on a premium to market) and partly because this transaction happened in a market environment in which valuations were quite high (2007). We have gone on to create several more precedent transactions in Table 10.2.

TABLE 10.2 Precedent Transactions

Precedent Transactions

(in US$ millions)

		Purchase Price		Equity Value /	Enterprise Value /		
Transaction	Transaction Date	Market Value $MM	Enterprise Value $MM	Earnings ×	Revenue ×	EBIT ×	EBITDA ×
KKR / Dollar General	7/6/2007	7,003.6	7,290.7	50.8×	0.8×	29.4×	16.2×
The Great Atlantic & Pacific Tea Co. / Pathmark Stores Inc.	2/27/2007	818.1	1,400.0	N.M.	0.3×	54.1×	11.7×
Whole Foods Market Inc. / Wild Oats Markets Inc	2/21/2007	565.0	672.8	0.04×	0.6×	37.2×	15.2×
Rite Aid Corporation / Jean Coutu Group (Brooks-Eckerd)	8/24/2006	2,550.0	3,400.0	N/A	N/A	N/A	N/A
Supervalu Inc., CVS Corporation, Cerberus Capital Management, L.P. / Albertson's, Inc	1/23/2006	N/A	17,400.0	N/A	N/A	N/A	N/A
Bon-Ton Stores Inc. / Saks Inc. (Northern)	10/31/2005	N/A	1,047.3	N/A	0.5×	N/A	N/A
Bain Capital LLC / Dollarama Inc	11/18/2004	927.4	885.0	24.14×	1.8×	13.9×	12.4×
Median		**927.4**	**1,400.0**	**24.14×**	**0.6×**	**33.3×**	**13.8×**
High		**7,003.6**	**17,400.0**	**50.8×**	**1.8×**	**54.1×**	**16.2×**
Low		**565.0**	**672.8**	**0.0×**	**0.3×**	**13.9×**	**11.7×**

Thanks to analysts Mitchel Campbell and Timothy Ma for their assistance on completing the Precedent Transactions analysis.

In the next chapter, we will combine the results of this analysis with the DCF and comparable companies to draw a final conclusion on the valuation of Walmart.

CHAPTER 11

Conclusion

Now we can do our best to assess all three valuation methods and draw some conclusions as to Walmart's current valuation. Of course, we caution that this is just one of several possible points of view. Most important is that you gain the ability to understand the tools used so that you can make your own judgments to value businesses and investments. The best next step is to lay out a summary page consisting of estimates resulting from each of the three valuation methods. As each method depends on a wide range of variables, many of which change with market swings, we expand each output across a range as opposed to centering on one specific number. Even a range can hopefully suggest proper direction of a particular investment. The summary page should consist of a range of equity value, enterprise value, implied stock price, and an implied multiple. Let's assess each valuation method, come up with a relative range, and then create the summary tab, which we will analyze to approximate value.

In addition to a summary output, we will create what is commonly known as a "football field" chart. This is a floating bar chart'a visual representation of the summary page. For many, it's easier for both analysis and presentation purposes to establish an appropriate company value by drawing conclusions from the bar chart.

Please refer to the tab in the template titled "Football Field." Notice the summary output table contains four categories: the three core valuation methods, plus "52-week high/low." For each of these categories we want to assess value.

52-WEEK HIGH/LOW

It is useful to compare the value results with the company's value based on where its stock has peaked and troughed within the last 52-week period. We can easily find the 52-week high and low from Yahoo! Finance, by searching under the ticker "WMT." As of this writing, WMT is showing a 52-week low of $56.26 and a 52-week high of $77.60. So to be able to convert this into comparable value, we need to multiply the 52-week high and low by the number of WMT shares outstanding. We can pull in the share count calculated in the discounted cash flow analysis (DCF). This gives an equity value range of $189, 357–$261, 182. We can then add Walmart's net debt and non-controlling interest (also from the DCF analysis) to convert the equity value into enterprise value. We can then divide the enterprise value (EV) by Walmart's 2012A Earnings before interest, taxes, depreciation, and amortization (EBITDA) to get an EV/EBITDA Multiple range of 7.0×–9.0×. So, this is the effective value of Walmart over the past 52 weeks. Let's compare this with the other valuation methods. See Table 11.1.

TABLE 11.1 Walmart Value Based on 52-Week High/Low

	52-week high/low		
	Low	—	High
Share price	$56.26	—	$77.60
Shares outstanding	3,365.74	—	3,365.74
Equity value	$189,357	—	$261,182
Net debt and other	$51,727	—	$51,727
Enterprise value	$241,084	—	$312,909
2012A EBITDA	34,688.0		34,688.0
Multiple	7.0×	—	9.0×

COMPARABLE COMPANY ANALYSIS

Recall the discussion in Chapter 7 discussing what multiples are most comparable. Although this can differ from situation to industry, we can look at the comparable company output table (Chapter 9, Table 9.24) to help establish what ranges of multiples are best to help assess value for Walmart. Looking at Table 9.24, we see the price to earnings (P/E) multiples have a very wide range and several "outliers." For example, the COSTCO P/E is about 25× while a majority of the others are around 15×. As discussed in Chapter 7, this is not surprising, as the P/E multiples include effects of capital structure. Given that information, let's look at the EBITDA multiples. It is arguable whether we should utilize the 2012YE, last twelve months (LTM), or 2013E multiple. Looking at any of these multiples, or all together, suggests a range from around 8.0× to 11.0×. Your individual judgment can have an effect here, so you may have a different opinion on this. Given this estimated range, we can interpret multiple ranges into value ranges by multiplying 8.0× and 11.0× by Walmart's 2012A EBITDA. We could have multiplied by Walmart's 2013E EBITDA or LTM EBITDA if the implied multiples we used were created by 2013E or LTM metrics. In this case it was fairly uncertain, as we looked at all time periods, but we felt using 2012A is more consistent with the EBITDA we used in the 52-week high/low section. This gives us an enterprise value range of $277, 504–$381, 568. We can now subtract from this the Walmart net debt (be careful to use the same time period as the EBITDA), and divide by the number of shares outstanding to get an implied equity value and stock price based on our valuation range. (See Table 11.2.)

TABLE 11.2 Walmart Value Based on Comparable Company Analysis

	Comparable company analysis		
	Low	—	High
Share price	$67.08	—	$98.00
Shares outstanding	3,365.7		3,365.7
Equity value	225,777.0		329,841.0
Net debt	51,727.0		51,727.0
Enterprise value	**277,504.0**	—	**381,568.0**
2012A EBITDA	34,688.0		34,688.0
Multiple	8.0×	—	11.0×

Based on the comps analysis, maybe Walmart should be trading anywhere between $67.08 and $98.00. This is quite a wide range and could suggest Walmart is overvalued or undervalued. Let's look at the other valuation metrics and compare.

PRECEDENT TRANSACTIONS

Remember that precedent transactions include a control premium. So we are expecting this range to be higher than the others. Looking at the precedent transaction table (Chapter 10, Table 10.2), we see the EBITDA multiples are quite high ranging, from roughly 12.0× to 16.0×. Let's use the EBITDA multiples as we have used them for the comps, and they don't include capital structure affects. We can use the same process as we did with the comps to back into implied value and stock price ranges, resulting in a range from $108.31 to $149.53. This is, as expected, quite high. It is helpful to see an absolute maximum, and we know if other valuations result in ranges higher than what the precedents give us, there is either something wrong with our analysis, or there must be some good explanation. Let's compare with the DCF analysis. (See Table 11.3.)

TABLE 11.3 Walmart Value Based on Precedent Transactions

	Precedent transactions		
	Low	—	High
Share price	$108.31	—	$149.53
Shares outstanding	3,365.7		3,365.7
Equity value	364,529.0		503,281.0
Net debt	51,727.0		51,727.0
Enterprise value	**416,256.0**	—	**555,008.0**
2012A EBITDA	34,688.0		34,688.0
Multiple	12.0×	—	16.0×

DISCOUNTED CASH FLOW

For the DCF, we have already calculated estimated stock prices of $88.47–$96.34. This is a very tight range in comparison to the other valuation methods. However, these methods are based on a couple of variables that can drastically change this analysis:

- **Weighted average cost of capital (WACC)**. Our 5.16 percent WACC is quite low. A small adjustment to one of the WACC formula drivers'for example, increasing the Beta to 0.75'will increase the WACC to 6.79 percent. Notice how as the WACC increases, the EV based on the EBITDA method decreases, but not as dramatically as the decrease in the EV based on the perpetuity. How likely is it that WACC will increase? This needs to be assessed and thought through. We would argue it is more likely for WACC to increase than decrease in this market environment. Could the risk-free rate really go lower? It looks like it is trending back up. Or can Walmart's Beta really reduce further? This is just an opinion, but if WACC increases, the value can only get lower. Feel free to go ahead and change the Beta in Cell L23 in the DCF tab to see how and increase in beta affects the estimates prices.
- **EBITDA exit multiple**. In Chapter 8, we took Walmart's current EBITDA multiple as the terminal value multiple to be conservative. Maybe we were being too conservative. Knowing that Walmart's comps are anywhere from 8.0× to 11.0×, maybe that multiple can go up? If we took a midpoint of 9.5× or even experimented with 11.0×, the terminal value based on the EBITDA method increases. Notice this has no effect on the perpetuity. So given an increase in Walmart's multiple, technically the stock can increase to over $100. What's interesting is that we believe the EBITDA method is significantly higher than the perpetuity method, then this is a red flag. In other words, the method supported by the cash flows (perpetuity) is significantly lower than the method based on market multiples (EBITDA). In our opinion, if the cash flows do not support the market estimates, then that's a signal that the market could be overvaluing the stock. That's evidence that the possibility of the multiple increasing is not the best representation of the value of the company. We're not suggesting that it will not happen, but if it doesn't, caution that we've gone beyond the peak, unless the company reports some jump in revenue or earning to support it.
- **Perpetuity growth rate**. With such a low WACC, a 1 percent change to the perpetuity growth rate can make a significant change to the value of the business based on the perpetuity. This does not affect the EBITDA value, however. So, if you believe the growth rate will increase, then the value of the business based on the perpetuity will also increase to over $100.
- **Model projections**. The underlying projections of the model also make a difference here. If the revenue growth is reduced to 1 percent, for example, both the EBITDA and perpetuity values will decrease.

All these variables need to be taken into consideration when coming up with a range based on the DCF value. Utilizing all the possibilities suggested previously, there is an absolute minimum of ~$61 and a maximum of over $100. This is a very wide range. Table 11.4 shows the valuation of

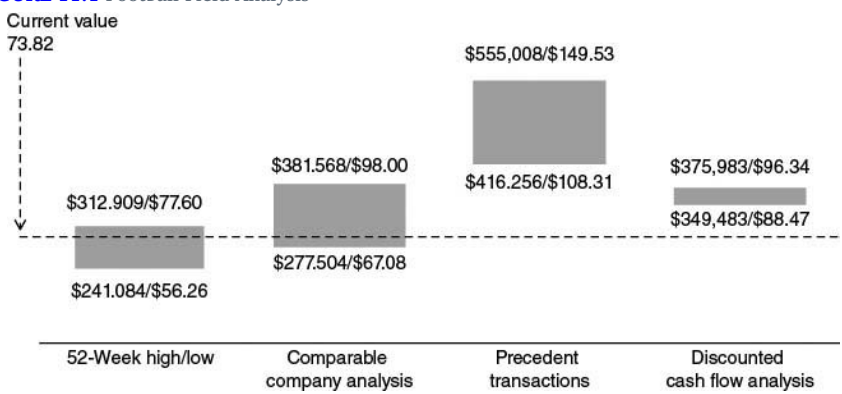
Walmart based on the original "tight" range for now, knowing that this may be later adjusted.

TABLE 11.4 Walmart Value Based on All Methods

	52-week High / Low			Comparable Company Analysis			Precedent Transactions			Discounted Cash Flow Analysis		
	Low	—	High	Low	—	High	Low	—	High	Low	—	High
Share price	$56.3	—	$77.6	$67.08	—	$98.00	$108.31	—	$149.53	$88.47	—	$96.34
Shares outstanding	3,365.7	—	3,365.7	3,365.7		3,365.7	3,365.7		3,365.7	3,365.7		3,365.7
Equity value	$189,357	—	$261,182	225,777.0		329,841.0	364,529.0		503,281.0	297,755.5		324,256.3
Net debt and other	$51,727	—	$51,727	51,727.0		51,727.0	51,727.0		51,727.0	51,727.0		51,727.0
Enterprise value	$241,084	—	$312,909	277,504.0	—	381,568.0	416,256.0	—	555,008.0	349,482.5	—	375,983.3
2012A EBITDA	34,688.0		34,688.0	34,688.0		34,688.0	34,688.0		34,688.0	34,688.0		34,688.0
Multiple	7.0×	—	9.0×	8.0×	—	11.0×	12.0×	—	16.0×	10.1×	—	10.8×

The visual representation, the "football field, " is found in Figure 11.1.

FIGURE 11.1 Football Field Analysis



We tried to further the above adjustments to limit the most risky of variables. So, in conclusion, it appears there is still a lot of support suggesting the potential for the stock to rise above it's current value of 73.82 given continued strong guidance. Again, this depends on the company's performance in the next quarters and assumes no other extraordinary or unplanned events will happen. Once the company provides new financials, we can update the model and get a stronger assessment. Remember this is as of October 19, 2012.

When this analysis was originally run in January of 2012, as discussed in the Preface of this book, the analysis was much simpler. At the then current share price ~$60.00, any scenario run previously suggests the stock must go up unless there was a major company event. It is these "golden" opportunities an investor can look for. We hope you can use these tools to find your own golden opportunities, now more informed. If this book succeeds in making everyone a more rational investor, we have collectively achieved one more step toward a more rational and thus efficient market environment.

APPENDIX 1

Model Quick Steps

I. Income Statement

- **1.** Input Historical Income Statement Data
- **2.** Project revenue
- **3.** Project all expenses
  - **a.** Leave Depreciation empty (to come from Depreciation Schedule; III.1.a)
  - **b.** Leave Interest Expense and Interest Income empty (to come from Debt Schedule; VI.8 and VI.9)
- **4.** Build to Net Income

II. Cash Flow

- **1.** Input Historical Cash Flow Data
- **2.** Cash Flow from Operations Projections
  - **a.** Pull in Net Income before Dividends from Income Statement
  - **b.** Leave Depreciation empty (to come from Depreciation schedule; III.1.b.)
  - **c.** Leave Deferred Taxes empty (to come from Depreciation schedule; III.3.a)
  - **d.** Leave Changes in Operating Working Capital empty (to come from Operating Working Capital schedule; IV.1.a. and IV.2.a)
  - **e.** Project “Other” items
- **3.** Cash Flow from Investing
  - **a.** Project Capex
  - **b.** Project “Other” Items
- **4.** Cash Flow from Financing
  - **a.** Leave Short Term Debt Borrowings / (Retirements) empty (to come from Debt Schedule VI.3.b)
  - **b.** Leave Long Term Debt Borrowings / (Retirements) empty (to come from Debt Schedule VI.4.b)

c. Pull in Dividends from Income Statement

d. Project "Other" items

5. Sum Total Cash Flow

III. Depreciation Schedule

1. Project GAAP Depreciation

a. GAAP Depreciation links to Income Statement (I.3.a.)

b. GAAP Depreciation will link to Cash Flow (II.2.b)

2. Project Tax Deprecation

3. Calculate Deferred Taxes

a. Deferred Taxes will link to Cash Flow (II.2.c)

IV. Operating Working Capital

1. Project Each Current Asset line item

a. Each Change in Current Asset line item will link to Cash Flow (II.2.d)

2. Project Each Current Liability line item

a. Each Change in Current Liability line item will link to Cash Flow (II.2.d)

3. Calculate Changes in Operating Working Capital

V. Balance Sheet

1. Input historical Balance Sheet data

2. Build Balance Future Sheet balances using the Cash Flow Statement movements

VI. Debt Schedule

1. Pull in year-end debt and cash balances from Balance Sheet

2. Calculate Cash Available to Pay Down Debt

3. Build Short Term Debt Balance

a. Calculate Interest Expense

b. Create Mandatory + Automatic issuances / (retirements)

4. Build Long Term Debt Balance

a. Calculate Interest Expense

b. Create Mandatory + Automatic issuances (retirements)

5. Calculate Total Interest Expense

6. Calculate Total Mandatory + Automatic Issuances

7. Calculate Cash at the end of Year

a. Calculate Interest Income

8. Link total Interest Expense to Income Statement (I.3.b)

9. Link total Interest Income to Income Statement (I.3.b)

10. Short Term Mandatory + Automatic issuances links to Cash

Flow Statement (II.4.a)

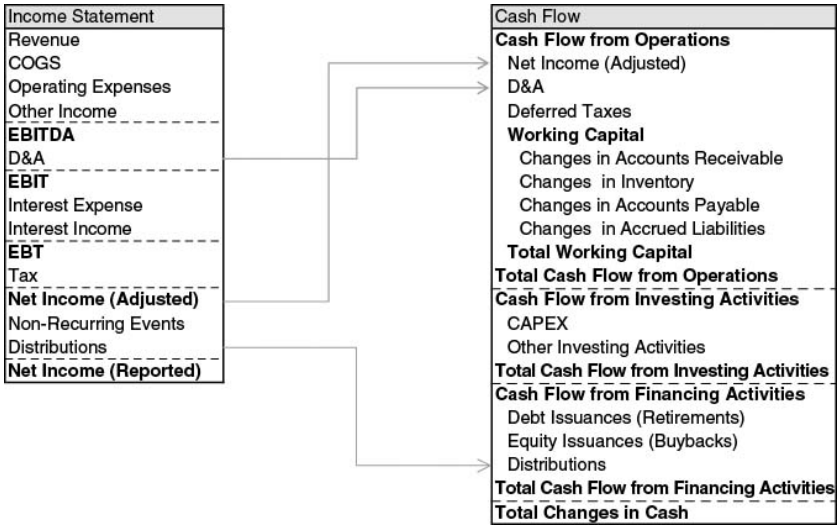
11. Long Term Mandatory + Automatic issuances links to Cash Flow Statement (II.4.b)

Model is complete.

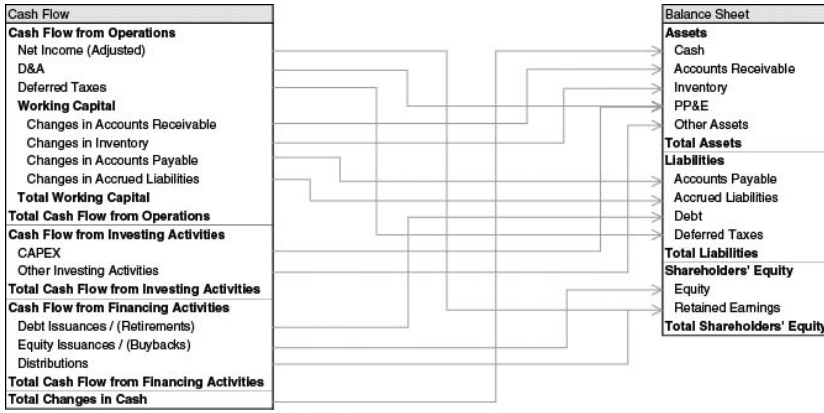
APPENDIX 2

Financial Statement Flows

INCOME STATEMENT TO CASH FLOW



CASH FLOW TO BALANCE SHEET


Cash Flow
Cash Flow from Operations
Net Income (Adjusted)
D&A
Deferred Taxes
Working Capital
Changes in Accounts Receivable
Changes in Inventory
Changes in Accounts Payable
Changes in Accrued Liabilities
Total Working Capital
Total Cash Flow from Operations
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Excel Hotkeys

File Operation	Shortcut Key
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Open file	Ctrl + O
Save file	Ctrl + S
Close file	Ctrl + F4
Save as	F12
Exit Excel	Alt + F4
Print	Ctrl + P
Cell Operations	**Shortcut Key**
Edit active cell	F2
Cancel cell editing	Escape Key
Cut	Ctrl + X
Copy	Ctrl + C
Paste	Ctrl + V
Copy right	Ctrl + R
Copy down	Ctrl + D
Create cell comment	Shift + F2

Cell Formatting	Shortcut Key
Format cells	Ctrl + 1
Format as currency	Ctrl + Shift + 4
Format as date	Ctrl + Shift + 3
Format as percentage	Ctrl + Shift + 5
Format as number	Ctrl + Shift + 1
Bold	Ctrl + B
Italicize	Ctrl + I
Underline	Ctrl + U
Strikethrough	Ctrl + 5
Add cell borders	Ctrl + Shift + 7
Remove all borders	Ctrl + Shift + – (minus)
Selecting Cells	
Select entire worksheet	Ctrl + A
Select group area	Ctrl + Shift + 8
Select column	Ctrl + Space
Select row	Shift + Spacebar
Select Manually	Hold Shift + Left, Right, Up, Down Arrow Key

Worksheet Navigation	Shortcut Key
Up one screen	Page Up
Down one screen	Page Down
Move to next worksheet	Ctrl + Page Down
Move to previous worksheet	Ctrl + Page Up
Go to first cell in worksheet area	Ctrl + Home
Go to last cell in worksheet area	Ctrl + End
Go to formula source	Ctrl + {
Go to a cell	F5

Other Operations	Shortcut Key
Find text	Ctrl + F
Replace text	Ctrl + H
Undo last action	Ctrl + Z
Redo last action	Ctrl + Y
Create a chart	F11
Spell check	F7
Show all formulas	Ctrl + ~
Insert columns/ rows	Ctrl + Shift + + (plus sign)
Insert a new worksheet	Shift + F11
Move between open workbooks	Ctrl + F6
Autosum	Alt + = (equals sign)

About the Author

Paul Pignataro is an entrepreneur specializing in finance education. Mr. Pignataro has built and successfully run several startups in the education and technology industries. Mr. Pignataro also has over 13 years of experience in investment banking and private equity in business mergers, acquisitions, restructurings, asset divestitures, asset acquisitions, and debt and equity transactions covering the oil, gas, power and utility, Internet and technology, real estate, defense, travel, banking, and service industries.

He most recently founded New York School of Finance, which has grown into a multimillion-dollar finance education business, providing finance education to banks, firms, and individuals throughout the globe. At NYSF, Mr. Pignataro continues to participate on the training team, actively providing training at bulge bracket banks and M&A teams at corporations, and has personally trained funds of high-net-worth individuals worth billions of dollars. NYSF continues to train at over 50 locations worldwide, and Mr. Pignataro travels extensively on a monthly basis training sovereign funds and investment banks overseas.

Mr. Pignataro has also developed a semester-long program, the NYSF Advantage Program, based in New York and geared toward business students, which has helped students from top schools including Harvard, Wharton, and even lower-tier business schools land jobs at the top firms on Wall Street.

Prior to his entrepreneurial endeavors, Mr. Pignataro worked at TH Lee Putnam Ventures, a $1 billion private equity firm affiliated with buyout giant Thomas H. Lee Partners. Prior to TH Lee, Mr. Pignataro was at Morgan Stanley, where he worked on various transactions in the technology, energy, transportation, and business services industries. Some of the transactions included the $33.3 billion merger of BP Amoco and ARCO, the $7.6 billion sale of American Water Works to RWE (a German water company), the sale of two subsidiaries of Citizens Communications, a $3.0 billion communications company, and the sale of a $100 million propane distribution subsidiary of a $3 billion electric utility.

He graduated from New York University with a bachelor's degree in mathematics and a bachelor's degree in computer science.

About the Companion Web Site

The companion web site contains the model template and solution that accompanies the book. The purpose of the additional model template is for you to gain first-hand practice and to further illustrate the application of skills learned in the book. I encourage you to download the template and work through the model as you page through the book.

The web site also contains a second valuation. It is important to compare the type of valuation learned in the book with several others to get more perspective. Feel free to download and utilize these models, or try to create your own and compare.

The web site also contains chapter questions and answers to help aid in your knowledge of the material presented in the book. The questions not only complement each chapter but have frequently been utilized in conducting investment banking interviews. In addition to strengthening your fundamental knowledge of investment banking, the review of questions and suggested answers will help one prepare for such investment banking interviews. Note the practice model and solution on the web site, which is a great test of the knowledge learned in the book.

Please note that some of the accompanying models presented in the web site were constructed by my colleagues and associates, and may contain varying viewpoints. It is helpful see other types of models from other points of view to illustrate the possible variety. Once core concepts are honed, financial projections are yours to create and the possibilities are endless. Enjoy!

To access the site, go to www.wiley.com/go/pignataro (password: investment).

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